PHILIPS LCD Monitor

Family: HUDSON6

Service
Service
Service

170X6FB/00
170X6FB/93
170X6FW/00
170X6FW/93
190X6FB/00
190X6/FB/93

Service Manual

Horizontal frequencies
30 - 83kHz

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SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

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飞利浦 PHILIPS

Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all Philips Consumer Electronics Company** Equipment. The service procedures recommended by Philips and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Philips could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Philips has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Philips must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

* *Hereafter throughout this manual, Philips Consumer Electronics Company will be referred to as Philips.

WARNING ⚠

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Philips. Philips assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

* Broken Line

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

Take care during handling the LCD module with Backlight unit

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment person s body are grounded through wrist band.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- Avoid contact with water as it may a short circuit within the module.
- If the surface of panel become dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

FOR PRODUCTS CONTAINING LASER :

DANGER- Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION- The use of optical instruments with this product will increase eye hazard.

1. General

1.1 Product description

190X6 is the 6th generation of Hudson 19" TFT Flat Panel Display Monitor. The monitor featured with both DVI-D and analog signal Input interface, and modularized as a display unit with embedded Universal AC power supplies inside monitor main body. The power Button and display control buttons (tact switch type) are on the front And the right-hand side of the monitor. The monitor shall support an Internal scaler to automatically enable the monitor to display lower Resolution video modes into 1280 x 1024 full screen display. The Image can be adjusted through OSD control board. These adjustments Can be stored on a board memory including 34 pre-set modes and 16 factory pre-set modes.

1.1.2 Destination: AP, CN, EE, GB, LA, ME, SH, WE

1.2. Basic data

1.2.1 LCD panel

Type NR. : LM190E03-TLB2/TLB4 (LPL)
Number of Pixels. : 1280 (H) x1024 (V)
Physical Size. : 396.0(w)*324.0(h)*16.5(d) mm
Pixel Pitch. : 0.098 (per one triad) x 0.294 mm
Color pixel arrangement : RGB vertical stripes
Support Color. : 16.2M colors (RGB 8 bits data)
Display Mode. : Normally White
Backlight. : CCFL edge light system
Active area. (WXH). : 376.32 x 301.056mm (19 "diagonal)
Viewing Angle. : Vertical 140 degree, Horizontal 140 degree (CR=10)
Contrast ratio. : 700:1
White luminance. : 300nits (Typ)

1.2.2. Power supply

Main Voltage: AC 90 - 135 Vrms and 170 - 264 Vrms, 50/60±2 Hz
Power consumption: 40 watts max (full loading, with audio)
Operating < 32W(typical value, without audio)
Standby < 1W.
DC power switch off < 1W (Excluded audio load)

Power cord length: 1.5M
Power cord type: 3 lead with earth plug
Power indicator: LED (ON: green, Standby: amber)
Auto power saving: EPA, Nutek, VESA, DPMS,

STATUS	H-sync	V-sync	Video	Power	LED
On	On	On	Active	<40W	Green /With Audio
On	On	On	Active	<32W	Green / Without Audio
Off	Off	Off	Blanked	<1W	Amber LED
DC Power off			N / A	<1W	LED Off

Note :
To achieve under 1 Watt power saving when "Stand-Alone Audio" feature is selected On and system is in Sleep Mode, follow below condition :Volume has to be adjusted to 0% prior to measurement.

1.2.3. Horizontal scan: 30 - 83 KHz
1.2.4. Vertical scan: 56 - 76 Hz
1.2.5. Input signals

The input signals can be applied in two different modes:

1). VESA Analog

The video input consists of red, green, and blue signals. The video Signals are analog levels, where 0V corresponds to black and 700mV is the maximum signal amplitude. Input impedance of video pins is 75 ohm +/- 1%.

The capability of sync signal inputs shall include separate sync, composite sync and sync on green. input impedance: 2k2 ohms

The signals are defined as follow:

Separate sync TTL level, Positive/Negative
Composite sync TTL level, Positive/Negative
Sync on green H-sync TTL level, Positive/Negative

2). Intel DVI Digital

Input signal: Four channel TMDS signals

Signal source: pattern generator format as the SPEC

1.2.6 Audio

Input signal level: 500mVrms

1.2.7 Input connectors

(1) Input analog D-sub connector pin assignment

PIN No.	SIGNAL
1	Red video input
2	Green video input / sync on green
3	Blue video input
4	GND
5	GND -Cable detect
6	Red video GND
7	Green video GND
8	Blue video GND
9	DDC +3.3V or +5V
10	Logic GND
11	GND
12	Serial data line (SDA)
13	H-sync / H+V
14	V-sync
15	Data clock line (SCL)

(2) Input DVI-D connector pin assignment

Pin No.	Description
1	T.M.D.S. data2-
2	T.M.D.S. data2+
3	T.M.D.S. data2 shield
4	No Connect
5	No Connect
6	DDC clock
7	DDC data
8	No Connect
9	T.M.D.S. data1-
10	T.M.D.S. data1+
11	T.M.D.S. data1 shield
12	No Connect
13	No Connect
14	+5V Power
15	Ground (for +5V) - Cable detect
16	Hot plug detect
17	T.M.D.S. data0-
18	T.M.D.S. data0+
19	T.M.D.S. data0 shield
20	No Connect
21	No Connect
22	T.M.D.S clock shield
23	T.M.D.S. clock+
24	T.M.D.S. clock-

Signal interface 15Pins, D-sub male with DDC-2B Pin assignments
24Pins, DVI-D male with DDC-2B Pin assignments

Technical Data(For 170X6)

Go to cover page

1. General

1.1 Product description

170X6 is the 6th generation of Hudson 17" TFT Flat Panel Display Monitor. The monitor featured with both DVI-D and analog signal input interface, and modularized as a display unit with embedded universal AC power supplies inside monitor main body. The power button and display control buttons (tact switch type) are on the front and the right-hand side of the monitor. The monitor shall support an internal scaler to automatically enable the monitor to display lower resolution video modes into 1280 x 1024 full screen display. The image can be adjusted through OSD control board. These adjustments can be stored on a board memory including 34 pre-set modes and 16 factory pre-set modes.

1.1.1 Destination: AP, CN, EE, GB, LA, ME, SH, WE

1.2. Basic data

1.2.1 LCD panel

Type NR. : LM170E01-TLA5/TLA8 (LPL)
Number of Pixels. : 1280 (H) x1024 (V)
Physical Size. : 358.5(w)*296.5(h)*17.0(d) mm
Pixel Pitch. : 0.264 (per one triad) x 0.264 mm
Color pixel arrangement. : RGB vertical stripes
Support Color. : 16.2M colors (RGB 8 bits data)
Display Mode. : Normally White
Backlight. : CCFL edge light system
Active area. (WXH). : 337.92 x 270.336mm (17" diagonal)
Viewing Angle. : Vertical 140 degree, Horizontal 140 degree (CR=10)
Contrast ratio. : 600:1 (Typ)
White luminance. : 250nits (Typ)

1.2.2. Power supply

Main Voltage: AC 90 - 135 Vrms and 170 - 264 Vrms, 50/60±2 Hz
Power consumption: 38 watts max
Operating < 35W(typical value)
Standby<1W.
DC power switch off < 1W (Exclusive of audio load)

Power cord length: 1.8M
Power cord type: 3 lead with earth plug
Power indicator: LED (ON: green, Standby: amber)
Auto power saving: EPA, Nutek, VESA, DPMS,

STATUS	H-sync	V-sync	Video	Power	LED
On	On	On	Active	<38W	Green /With Audio
On	On	On	Active	<32W	Green / Without Audio
Off	Off	Off	Blanked	<1W	Amber LED
DC Power off			N / A	<1W	LED Off

Note :

To achieve under 1 Watt power saving when "Stand-Alone Audio" feature is selected On and system is in Sleep Mode, follow below condition :

Volume has to be adjusted to 0% prior to measurement.

1.2.3. Horizontal scan: 30 - 83 KHz
1.2.4. Vertical scan: 56 - 76 Hz
1.2.5. Input signals

The input signals can be applied in two different modes:

1). VESA Analog

The video input consists of red, green, and blue signals. The video Signals are analog levels, where 0V corresponds to black and 700mV is the maximum signal amplitude. Input impedance of video pins is 75 ohm +/- 1%.The capability of sync signal inputs shall include separate sync, composite sync and sync on green. input impedance: 2k2 ohms

The signals are defined as follow:

Separate sync TTL level, Positive/Negative
Composite sync TTL level, Positive/Negative
Sync on green H-sync TTL level, Positive/Negative

2). Intel DVI Digital Input signal: Four channel TMDS signals
Signal source: pattern generator format as the spec

1.2.6 Audio Amplifier and headphone section :

Output power: 2 x 2Wrms into 16 Ohm
Input sensitivity: 500mVrms Frequency range: 100Hz - 20KHz
Volume control keypads are at the front control panel.
L/R input via 1.8m hard-wired cable with lime green 3.5mm plug
Headphone connection will mute speakers.
Loudspeaker section :
Rated input 2.0W Max. input 3.0W
Impedance 16 Ohm+/- 15%
Sensitivity 76 dB +/-3 dB (at 1W/1m at 1KHz)

1.2.7 Input connectors

(1) Input analog D-sub connector pin assignment

PIN No.	SIGNAL
1	Red video input
2	Green video input / sync on green
3	Blue video input
4	GND
5	GND - Cable detect
6	Red video GND
7	Green video GND
8	Blue video GND
9	DDC +3.3V or +5V
10	Logic GND
11	GND
12	Serial data line (SDA)
13	H-sync / H+V
14	V-sync
15	Data clock line (SCL)

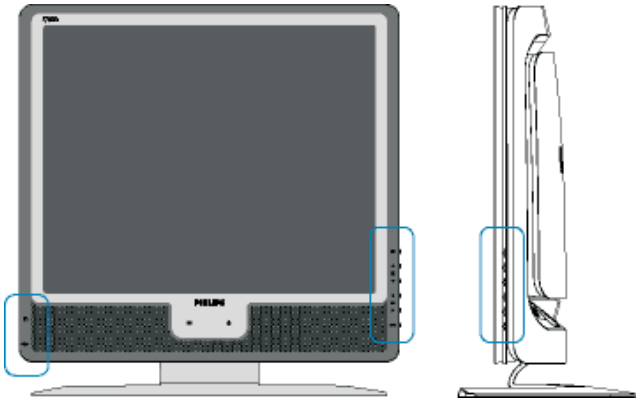
(2) Input DVI-D connector pin assignment

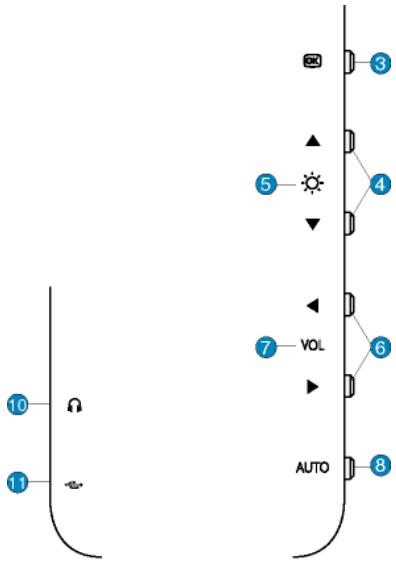
Pin No.	Description
1	T.M.D.S. data2-
2	T.M.D.S. data2+
3	T.M.D.S. data2 shield
4	No Connect
5	No Connect
6	DDC clock
7	DDC data
8	No Connect
9	T.M.D.S. data1-
10	T.M.D.S. data1+
11	T.M.D.S. data1 shield
12	No Connect
13	No Connect
14	+5V Power
15	Ground (for +5V) - Cable detect
16	Hot plug detect
17	T.M.D.S. data0-
18	T.M.D.S. data0+
19	T.M.D.S. data0 shield
20	No Connect
21	No Connect
22	T.M.D.S clock shield
23	T.M.D.S. clock+
24	T.M.D.S. clock-

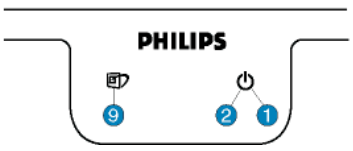
Signal interface
15Pins, D-sub male with DDC-2B Pin assignments
24Pins, DVI-D male with DDC-2B Pin assignments
Sync polarity: H-sync positive/negative
V-sync positive/negative

Connection to PC

Front view







Power button switches your monitor on.

Power LED

OK button which when pressed will take you to the OSD controls

UP and DOWN buttons are used when adjusting the OSD of your monitor.

BRIGHTNESS hotkey. When the UP and DOWN arrow buttons are pressed, the adjustment controls for the BRIGHTNESS will show up.

LEFT and RIGHT buttons, like the UP and DOWN buttons, are also used in adjusting the OSD of your monitor.

VOLUME VOLUME hotkey. When the LEFT and RIGHT arrow buttons are pressed, the adjustment controls for VOLUME will show up.

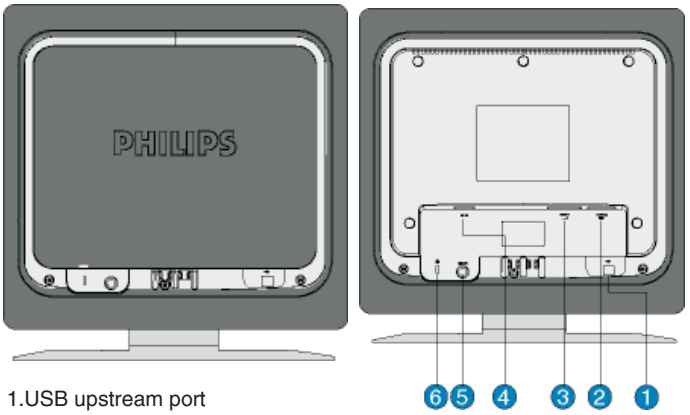
AUTO Automatically adjust the horizontal position, vertical position, phase and clock setting.

LightFrame™ hotkey to select full-screen modes among Internet, Photo and Video-TV.

Earphone jack (on side).

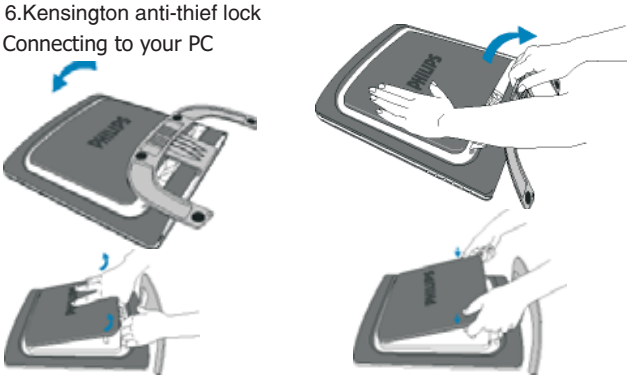
USB port for versatile peripheral connections

Rear View

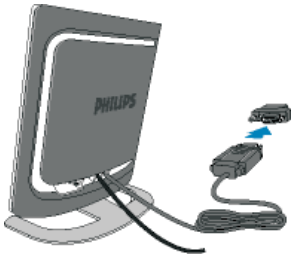


1.USB upstream port
2.VGA input
3.DVI-D input
4.AC power input
5.PC audio input
6.Kensington anti-thief lock

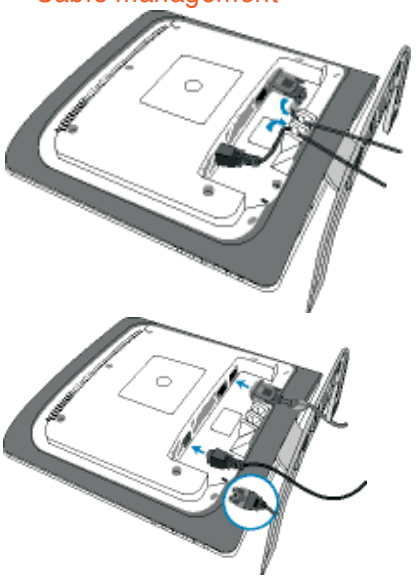
Connecting to your PC



If you use an Apple Macintosh, you need to connect the special Mac adapter to one end of the monitor signal cable.

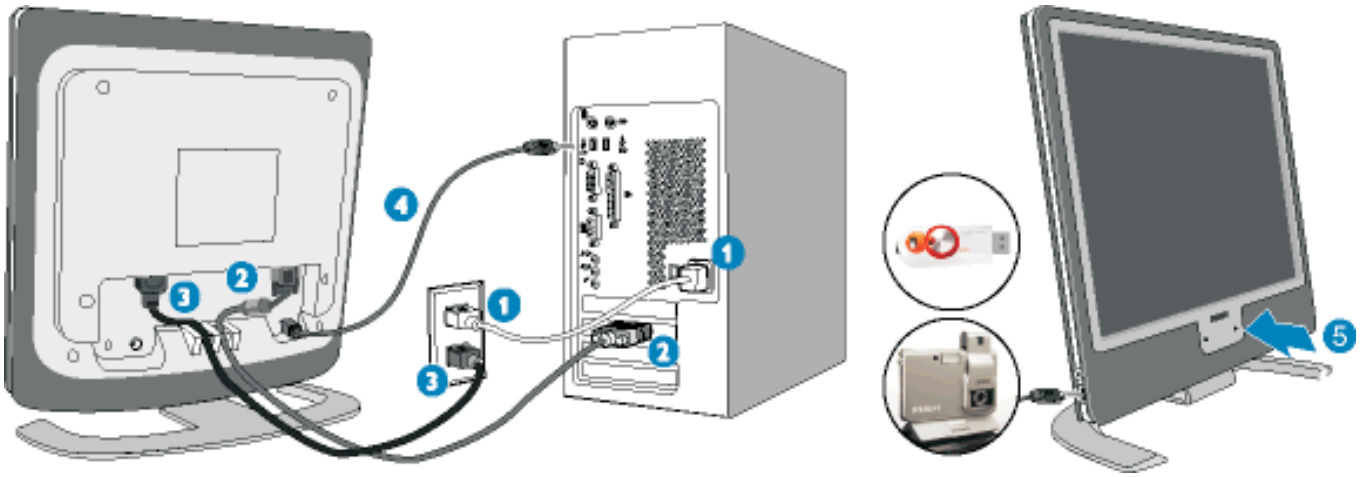


Cable management



Connection to PC

Connect to PC

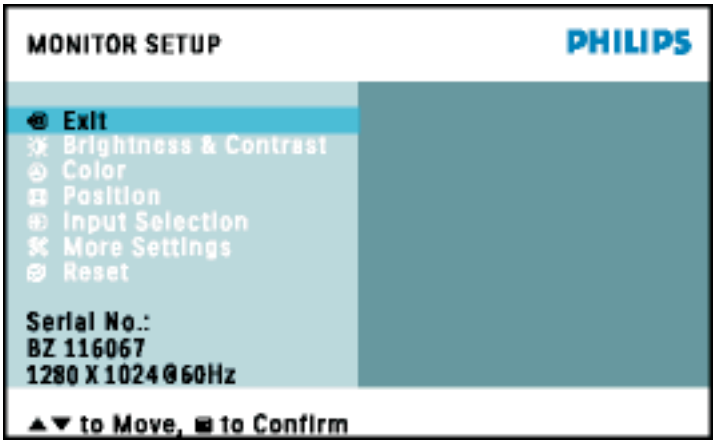


1. Turn off your computer and unplug its power cable.
2. Connect the monitor signal cable to the video connector on the back of your computer
3. Plug the power cord of your computer and your monitor into a nearby outlet
4. USB plug
   (a) Connect USB upstream port on monitor and the USB port on PC with a USB cable.
   (b) The USB downstream port is now ready for any USB device to plug in
5. Turn on your computer and monitor. If the monitor displays an image, installation is complete.

Note: The USB plug is a pass through connection whether it can support USB 1.1 or USB 2.0 depends on your PC's specification.

On Screen Display

On-Screen Display (OSD) is a feature in all Philips LCD monitors. It allows an end user to adjust screen performance or select functions of the monitors directly through an on-screen instruction window. A user friendly on screen display interface is shown as below :



Basic and simple instruction on the control keys.

In the OSD shown above users can press buttons at the front bezel of the monitor to move the cursor, to confirm the choice or change, and to adjust/select the change

The OSD Tree(page8)

Below is an overall view of the structure of the On-Screen Display. You can use this as a reference when you want to work your way around the different adjustments later on.

Note: sRGB is a standard for ensuring correct exchange of colors between different devices (e.g. digital cameras, monitors, printers, scanners, etc.)

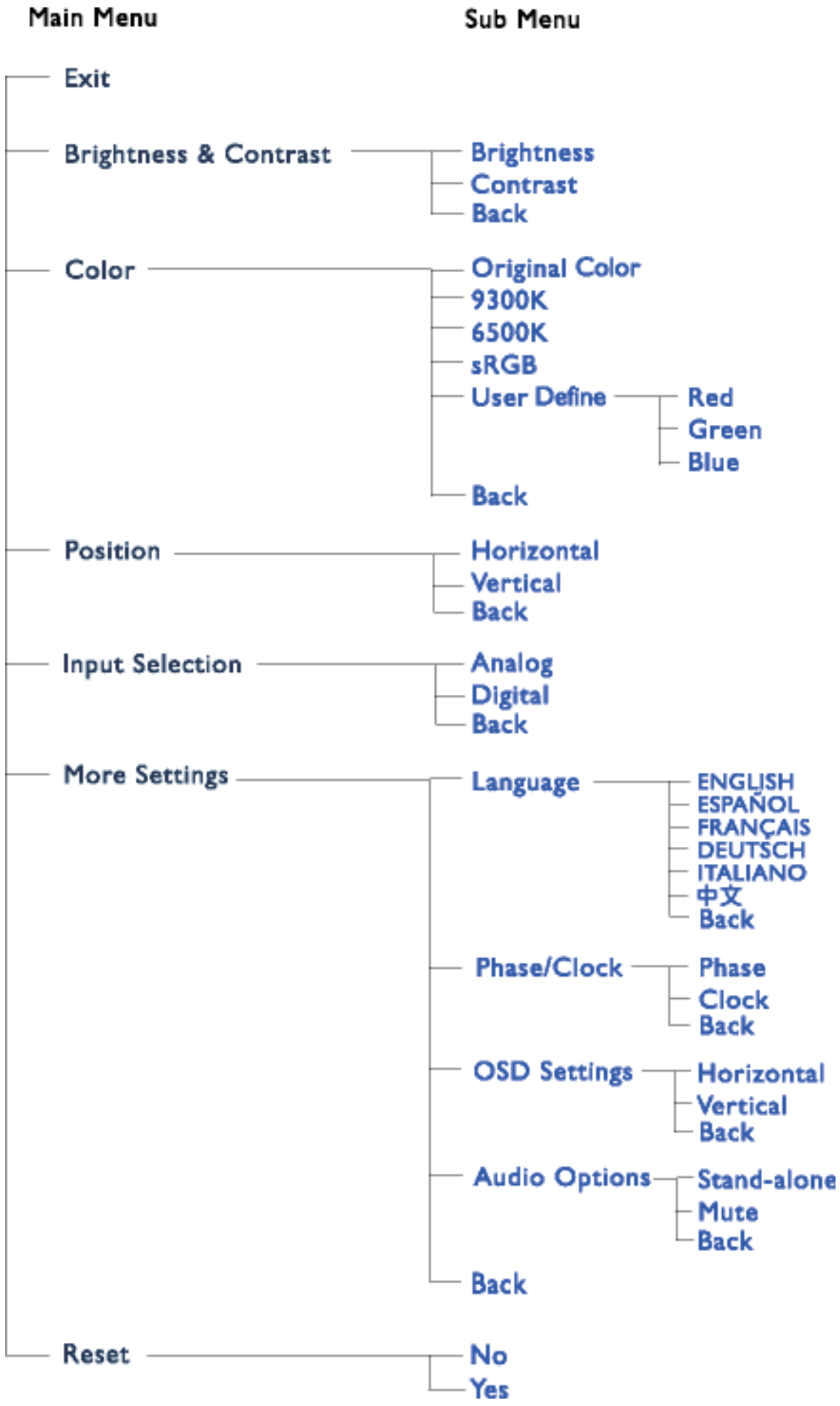
Using a standard unified color space, sRGB will help represent pictures taken by an sRGB compatible device correctly on your sRGB enabled Philips monitors. In that way, the colors are calibrated and you can rely on the correctness of the colors shown on your screen.

Important with the use of sRGB is that the brightness and contrast of your monitor is fixed to a predefined setting as well as the color gamut. Therefore it is important to select the sRGB setting in the monitor's OSD.

To do so, open the OSD by pressing the OK button on the side of your monitor. Move the down button to go to Color and press OK again. Use the right button to go to sRGB. Then move the down button and press OK again to exit the OSD.

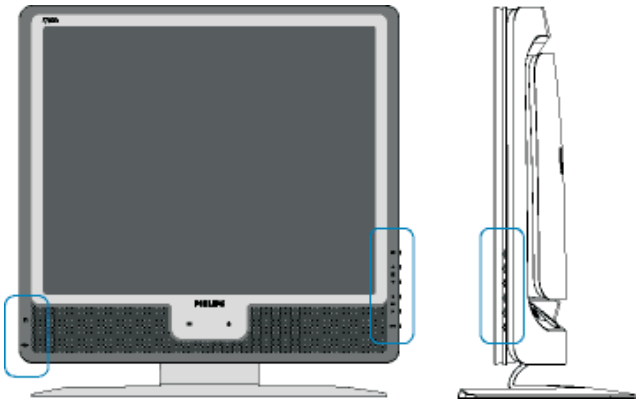
After this, please do not change the brightness or contrast setting of your monitor. If you change either of these, the monitor will exit the sRGB mode and go to a color temperature setting of 6500K.

On Screen Display



OSD Lock/Unlock, Aging Mode

Front Control Panel



To Lock/Unlock OSD FUNCTION(User Mode)

The OSD function can be locked by pressing"OK"button(1) for more than 10 seconds, the screen shows following windows for 3 seconds. Everytime when you press"AUTO" or "OK" button, this message appears on the screen automatically.

ATTENTION SIGNAL
OSD MAIN CONTROLS LOCKED

Unlock OSD function

Locked OSD function can be released by pressing "OK" button for more than 10 seconds again

ATTENTION SIGNAL
OSD MAIN CONTROLS UNLOCKED

NO VIDEO INPUT

This screen appears if there is no video signal input. Please check that the signal is properly connected to the video card of PC and make sure PC is on

ATTENTION SIGNAL
CHECK CABLE CONNECTION

CANNOT DISPLAY THIS VIDEO MODE..

This screen warns when the input frequency from the computer is not a standard video mode or out of the monitor's scanning range. Please change the display mode of the operating software in the computer(i.e.windows) to 1280*1024@60HZ for best display results.

ATTENTION SIGNAL
CANNOT DISPLAY THIS VIDEO MODE,CHANGE COMPUTER DISPLAY INPUT TO 1280*1024@60HZ!

WAIT FOR AUTOMATIC ADJUSTMENT

This screen appears when you press the "AUTO" buttons at the same time. It will disappear when the monitor is properly adjusted

ATTENTION SIGNAL
WAITING FOR AUTOMATIC ADJUSTMENT

Access Aging.. Mode

Step 1 : Turn off LCD monitor, and disconnect Interface Cable between Monitor and PC.
Step 2 : [Push AUTO " OK " &AUTO " buttons at the same time and hold it]+[Press power " ⏻ " button until comes out " AGING screen"] => then release all buttons.

Bring up:

After 15 seconds, bring up:

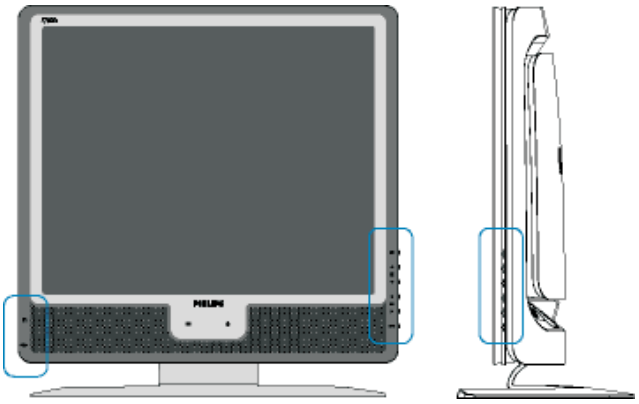
After 15 seconds, bring up:

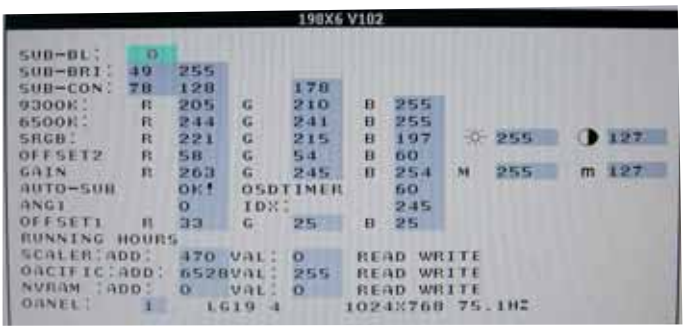
After 15 seconds, bring up:

---
repeatly
Connect Signal cable again=> go back to normal display

Factory Mode

Front Control Panel

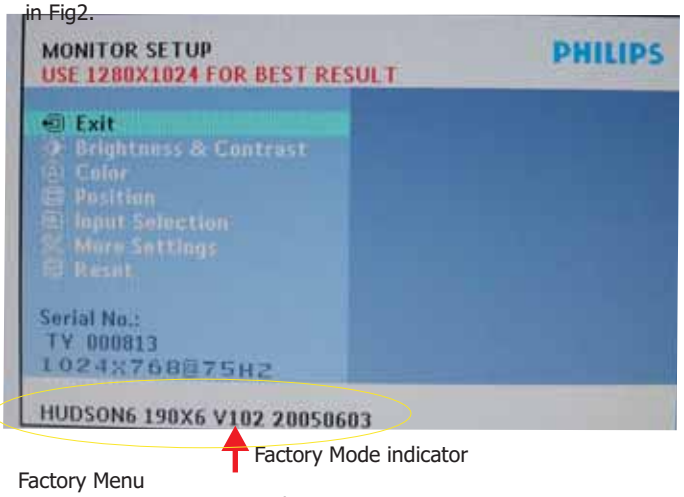



190X6 V102
SUB-BL: 0
SUB-BRI: 49 255
SUB-CON: 78 128 178
9300K: R 205 G 210 B 255
6500K: R 244 G 241 B 255
SRGB: R 221 G 215 B 197 255 127
OFFSET2 R 58 G 54 B 60
GAIN R 263 G 245 B 254 M 255 m 127
AUTO-SUB OK! OSDTIMER 60
ANG1 0 IDX: 245
OFFSET1 R 33 G 25 B 25
RUNNING HOURS
SCALER:ADD: 470 VAL: 0 READ WRITE
PACIFIC:ADD: 6528VAL: 255 READ WRITE
NVRAM :ADD: 0 VAL: 0 READ WRITE
PANEL: 1 LG19 4 1024X768 75.1HZ

BL : Blacklevel value
SUB-BRI : Brightness value range (Min Max)
SUB-CON : Contrast value range (Min Mid Max)
SRGB-B : Brightness of sRGB
SRGB-C : Contrast of sRGB
Gain-m : Minimum value of User Gain
Gain-M : Maximum value of User Gain
AUTO-SUB: To do Auto color function when push Menu key in white pattern
OSDTIMER : OSD time out control (sec)
ANG1 : For analog only project control (0:Dual, 1:Analog only)
IDX : Limit current of inverter, 170X6: 200, 190X6: 245
SCALER : Read/Write scaler register
NVRAM : Read/Write eeprom address
Panel : LG (LG.Philips panel)

Access Factory Mode

How to get into Factory Mode Menu
Step1:
Turn off monitor.
Step2:
[Push AUTO "AUTO" & OK "OK " buttons at the same time and hold it]
+[Press power " " button untill comes out "Windows screen"]
=> then release all buttons
Step3:
Press OK " OK " button, bring up Factory mode indication as shown in Fig2.



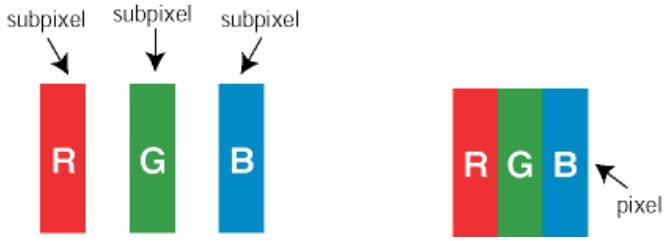
Factory Mode indicator

Factory Menu
Cursor can move on gray color area
Hot key function: by pressing " up " and " DOWN " key
Simultaneously at User Mode (or Factory Mode)
(PS: The Offset R G B function can be used on reduce or eliminate snowy noise on the background when the resolution of video signal is 1280*1024 vertical 60Hz. Slightly increase or decrease the value until snowy noise completely disappear

Pixel Defect Policy

Philips' Flat Panel Monitors Pixel Defect Policy

Philips strives to deliver the highest quality products. We use some of the industry's most advanced manufacturing processes and practice stringent quality control. However, pixel or subpixel defects on the TFT LCD panels used in flat panel monitors are sometimes unavoidable. No manufacturer can guarantee that all panels will be free from pixel defects, but Philips guarantees that any monitor with an unacceptable number of defects will be repaired or replaced under warranty.
This notice explains the different types of pixel defects and defines acceptable defect levels for each type. In order to qualify for repair or replacement under warranty, the number of pixel defects on a TFT LCD panel must exceed these acceptable levels.
For example, no more than 0.0004% of the subpixels on a 15" XGA monitor may be defective. Furthermore, Philips sets even higher quality standards for certain types or combinations of pixel defects that are more noticeable than others. This policy is valid worldwide .

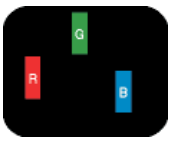


Pixels and Subpixels

A pixel, or picture element, is composed of three subpixels in the primary colors of red, green and blue. Many pixels together form an image. When all subpixels of a pixel are lit, the three colored subpixels together appear as a single white pixel. When all are dark, the three colored subpixels together appear as a single black pixel.
Other combinations of lit and dark subpixels appear as single pixels of other colors.

Types of Pixel Defects

Pixel and subpixel defects appear on the screen in different ways.
There are two categories of pixel defects and several types of subpixel defects within each category.
Bright Dot Defects Bright dot defects appear as pixels or subpixels that are always lit or "on".
These are the types of bright dot defects:



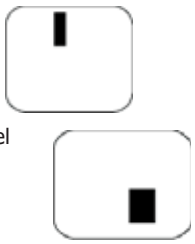
One lit red, green or blue subpixel

Two adjacent lit subpixels:
- Red + Blue = Purple
- Red + Green = Yellow
- Green + Blue = Cyan (Light Blue)

Three adjacent lit subpixels
(one white pixel)

Black Dot Defects

Black dot defects appear as pixels or subpixels that are always dark or "off".
These are the types of black dot defects:



One dark subpixel

Two or three adjacent dark subpixels

Proximity of Pixel Defects

Because pixel and subpixels defects of the same type that are nearby one another may be more noticeable, Philips also specifies tolerances for the proximity of pixel defects.

Pixel Defect Tolerances

In order to qualify for repair or replacement due to pixel defects during the warranty period, a TFT LCD panel in a Philips flat panel monitor must have pixel or subpixel defects exceeding the tolerances listed in the following tables.

BRIGHT DOT DEFECTS	ACCEPTABLE LEVEL	
MODEL	170X6	190X6
1 lit subpixel	0	0
2 adjacent lit subpixels	0	0
3 adjacent lit subpixels (one white pixel)	0	0
Distance between two bright dot defects*	0	0
Total bright dot defects of all types	0	0

BLACK DOT DEFECTS	ACCEPTABLE LEVEL	
MODEL	170X6	190X6
1 dark subpixel	0	0
2 adjacent dark subpixels	0	0
3 adjacent dark subpixels	0	0
Distance between two black dot defects*	0	0
Total black dot defects of all types	0	0

TOTAL DOT DEFECTS	ACCEPTABLE LEVEL	
MODEL	170X6	190X6
Total bright or black dot defects of all types	0	0

Mechanical Instructions

Front View

Fig. 1

Back View

Step 1: Use "I" type screwdriver to remove the Logo Cover as shown in Fig. 3.

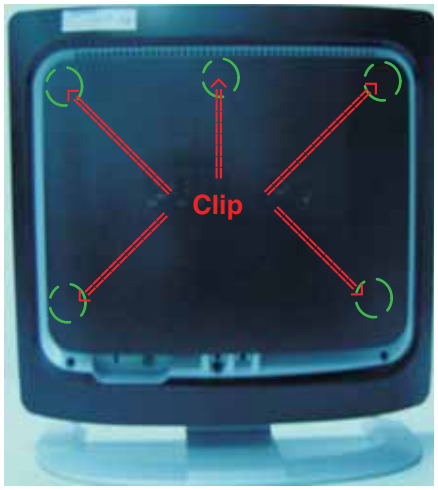


Fig. 3

Step 2: Unscrew 3 screws as shown in Fig. 4.

Fig. 4

Step 3:
-Unscrew the four screws as shown in Fig. 5.
- Remove the base.

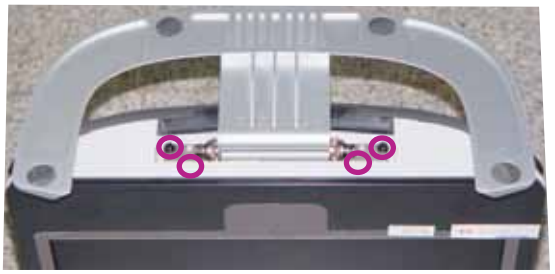


Fig. 5

Step 4: Remove the front bezel
- Use thin "I" type screwdriver to open 4 clicks on bottom side as shown in Fig. 6.
- Use thin "I" type screwdriver to open 3 clicks on right and left side as shown in Fig. 7.
- Use thin "I" type screwdriver to open 4 clicks on top side as shown in Fig. 8.

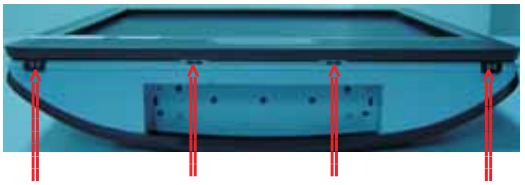


Fig. 6

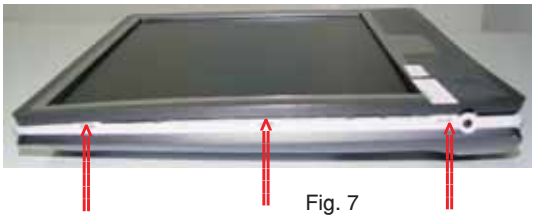


Fig. 7

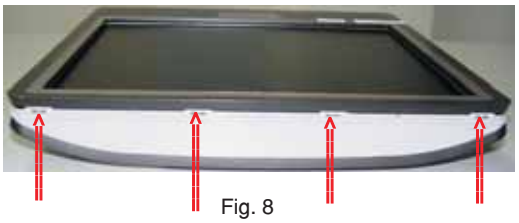


Fig. 8

Step 5: Remove the Back Cover Assy
-Remove the Control Board from the Back Cover Assy
-Unscrew 7 screws as shown in Fig. 9.
-Remove Audio Assy, Earphone Assy and two LSP Box from the Back Cover Assy
-Use thin "I" type screwdriver to open clicks on left side, right side and up side, Remove LCD Panel from Back Cover Assy as shown in Fig. 9.

Fig. 9

Step 6: Unscrew 12 screws as shown in Fig. 10.
Remove Shielding Cover

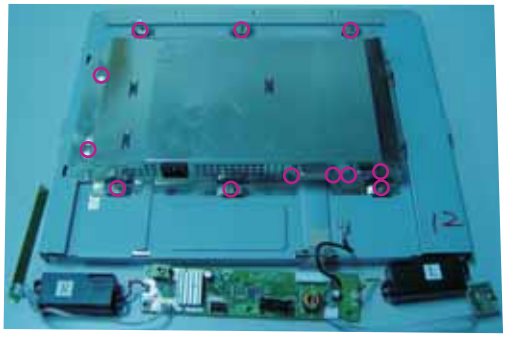


Fig. 10

Step 7: Unscrew 9 screws as shown in Fig. 11.
Disconnect 7 connectors as shown in Fig. 11.

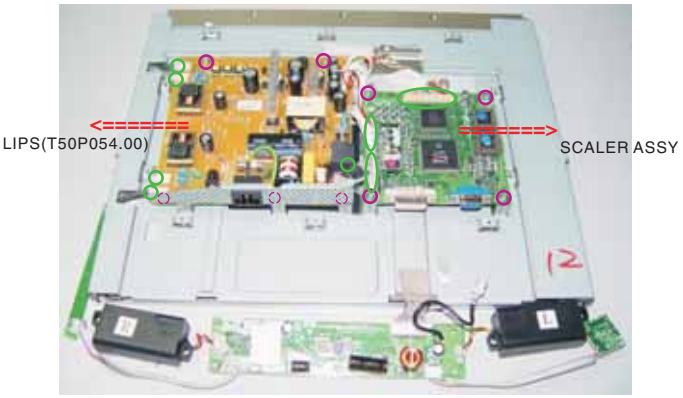


Fig. 11

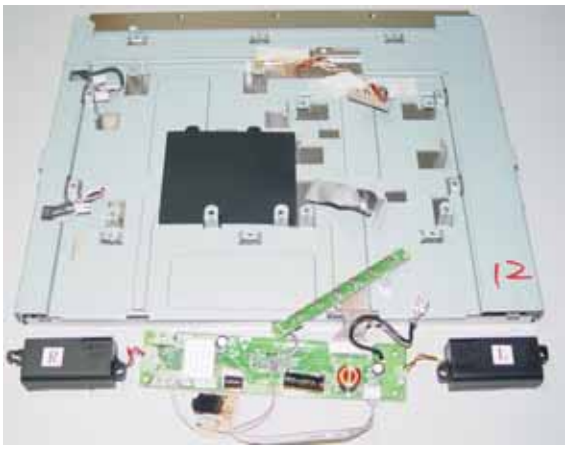


Fig. 12

****
In warranty, it is not allowed to disassembly the LCD panel, even the backlight unit defect.
Out of warranty, the replacment of backlight unit is a correct way when the defect is cused by backlight (CCFL,Lamp).
****

Display Adjustment

Alignment procedure
1. Turn on the LCD monitor.
2.Turn on the Timing/pattern generator. See Fig.1
Resolution :1280x1024(Use the best resolution)
Timing : H= 31.47KHz V=60Hz
3. Preset LCD color Analyzer CA-110
-Remove the lens protective cover of probe CA-A30.
-Set measuring/viewing selector to measuring position for reset analyzer.(zero calibration) as Fig.2
- Turn on the color analyzer (CA-110)
-Press 0-CAL button to starting reset analyzer. See Fig.3

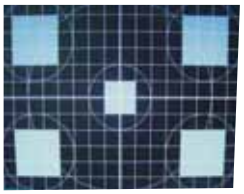


Fig. 1

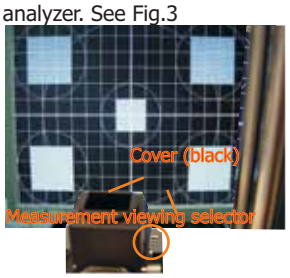


Fig. 2

4. Access Factory Mode

How to get into Factory Mode Menu
Step1:
Turn off monitor.
Step2:
[Push AUTO " AUTO " & OK " OK " buttons at the same time and hold it]
+[Press power " ⏻ " button untill comes out "Windows screen"]
=> then release all buttons
Step3:
Press OK " OK " button, bring up Factory mode indication as shown in Fig3.

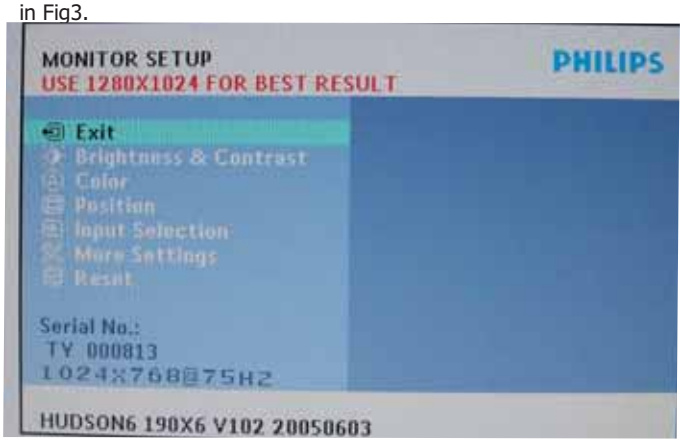


Fig. 3

Note: after alignment, please reset OSD to user s mode for normal operation. Otherwise, the monitor won t entering power saving mode and showing full white picture all the time as no video signal supplied. To leave factory mode by restart the monitor.

5. Adjust OSD menu to lower position of screen (i.e. adjust V-position to value " 0 " at submenu of OSD Setting.
6. Setting Brightness and Contrast
   - Adjust Brightness to value " 90".
   - Adjust Contrast to value " 80" .
7. Switch light probe to Viewing position.
8. Move the Lens barrel forward or backward to get clear image as shown in Fig. 4
9. Switch light probe to Measuring position. It should be able to indicate

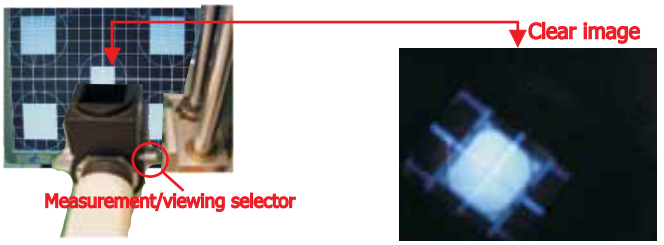
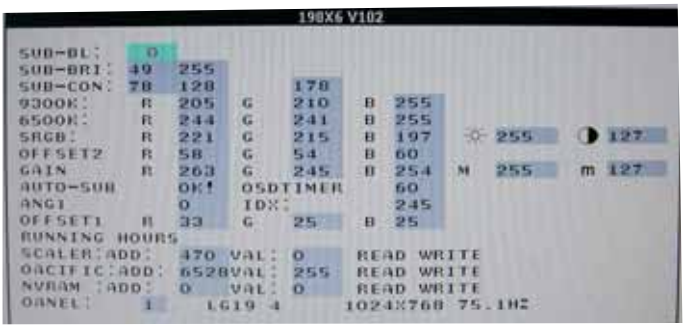


Fig.4

10. Setting pattern to full white picture
11. Press "OK" button, then select factory mode indicator by " ▽ " button
12. Press" OK " button to bring up submenu windows as below:


190X6 V102
SUB-BL: 0
SUB-BRI: 49 255
SUB-CON: 78 128 178
9300K: R 205 G 210 B 255
6500K: R 244 G 241 B 255
SRGB: R 221 G 215 B 197 255 127
OFFSET2 R 58 G 54 B 60
GAIN R 263 G 245 B 254 M 255 m 127
AUTO-SUB OK! OSDTIMER 60
ANGI 0 IDX: 245
OFFSET1 R 33 G 25 B 25
RUNNING HOURS
SCALER:ADD: 470 VAL: 0 READ WRITE
OACIFIC:ADD: 6528VAL: 255 READ WRITE
NVRAM :ADD: 0 VAL: 0 READ WRITE
OANEL: 1 LG19 4 1024X768 75.1HZ

13. Press " △ " or " ▽ " button to select R G B. Change the value by " ◁ " or " ▷ " key until the X,Y co-ordinates as below

	9300°K	6500°K
x (center)	0.283 ± 0.020	0.313 ± 0.020
y (center)	0.297 ± 0.020	0.329 ± 0.020

	sRGB
x(center)	0.313 ± 0.020
y(center)	0.329 ± 0.020
Ynits	180 ± 10

Alignment hits: 1. R for x value, G for y value, B for Y value on the colour analyzer.
2. If the colour analyzer has been calibrated and preset colour temperature in it. Please switch to correct setting in accordance with colour settings.

15. EEPROM presetting (B)
After finishing all the adjustment, set:
Brightness control to 100%
Contrast control to 50%
OSD position at middle of screen
COLOR adjusts to 6500K color.

Trouble Shooting

Common Problems	
Having this problem	Check these items
No Picture (Power LED not lit)	• Make sure the power cord is plugged into the power outlet and into the back of the monitor. • First, ensure that the power button on the front of the monitor is in the OFF position, then press it to the ON position.
No Picture (Power LED is amber or yellow)	• Make sure the computer is turned on. • Make sure the signal cable is properly connected to your computer. • Check to see if the monitor cable has bent pins. • The Energy Saving feature may be activated
Screen says 	• Make sure the monitor cable is properly connected to your computer. (Also refer to the Quick Set-Up Guide). • Check to see if the monitor cable has bent pins. • Make sure the computer is turned on
Screen says 	• Make sure the vertical sync of input signal is within the range of 56 ~ 75 Hz. • Change the refresh rate to 56~75Hz within 10 minutes. • Re-power on monitor to start over again if you failed to change the refresh rate within 10 minutes.
AUTO button not working properly	• The Auto Function is designed for use on standard Macintosh or IBM-compatible PCs running Microsoft Windows. • It may not work properly if using nonstandard PC or video card. • The AUTO adjustment does not function when digital input is used for display
Imaging Problems	
Display position is incorrect	• Press the Auto button. • Adjust the image position using the Horizontal Position and/or Vertical Position in OSD Main Controls.

Trouble Shooting

Image vibrates on the screen	• Check that the signal cable is properly connected to the graphics board or PC.
Vertical flicker appears	• Press the Auto button. • Eliminate the vertical bars using the Phase/Clock of More Settings in OSD Main Controls.
Horizontal flicker appears	• Press the Auto button. • Eliminate the vertical bars using the Phase/Clock of More Settings in OSD Main Controls.
The screen is too bright or too dark	Adjust the contrast and brightness on OSD Main Controls. (The backlight of the LCD monitor has a fixed life span. When the screen becomes dark or begins to flicker, please contact your dealer).
An after-image appears	• If an image remains on the screen for an extended period of time, it may be imprinted in the screen and leave an after-image. This usually disappears after a few hours
An after-image remains after the power has been turned off.	• This is characteristic of liquid crystal and is not caused by a malfunction or deterioration of the liquid crystal. The after-image will disappear after a peroid of time.
Green, red, blue, dark, and white dots remains	The remaining dots are normal characteristic of the liquid crystal used in today's technology
LightFrame™ doesn't work	• Press the Auto button. • Activate the LightFrame™ software again.
For further assistance, refer to the Consumer Information Centers list and contact your local Philips distributor	

Warning message

Item	Attention Signals	Display Time	Condition	Attention off
1	Can not display this video mode, change computer display input to 1280x1024@60Hz	30 mins	This warning appears when the input signal from your computer is not in a standard video mode or is out of the monitor s scanning range. After 30 mins, monitor enters sleeping mode.	
2	NO VIDEO INPUT	30.mins	This message appears when there is no signal input but with cable while AC or DC power on. After 30 mins, monitor enters sleeping mode	
3	CHECK CABLE CONNECTION	30 mins	This message appears when a signal cable is disconnected while monitor is working. After 30 mins, monitor enters sleeping mode.	
4	Enter sleep mode	3secs	This message appears when monitor is about to enter power saving mode	
5	Waiting for automatic adjustment	Till automatic adjustment finished	This message is displayed when auto adjustment button is pressed. It disappears when auto adjustments are completed	
6	Use 1280x1024 for best result	On top of OSD main menu	This message will show up at the top of the OSD main menu in red color when the input resolution is not the 1280x1024	
7	OSD main controls locked	3secs/or till OSD main controls unlocked appear	This message will appear 3 seconds to indicate the OSD MAIN CONTROLS status when to lock or un-lock it by pressing MENU(OK) button for more than 10 seconds while there is video input from PC. This function provides the alternative that user can lock all the OSD main control in case user don't want the FOS performance setting to be changed, for instance, during commercial exhibition.	

Warning Message

8	OSD MAIN CONTROLS UNLOCKED	3 secs	This message will appear 3 seconds to indicate the OSD MAIN CONTROLS status when to un-lock it by pressing "MENU(OK) " button for more than 10 seconds while there is video input from PC	
9	THIS IS 85HZ OVERSCAN, CHANGE COMPUTER DISPLAY INPUT TO 1280X1024@60HZ	10 mins	This message will appear 5 seconds in every 60 seconds for 10 minutes when the input of PC video timing is at 85Hz mode. Remark: AUTO is still functional in this mode	
10	the window of "MONITOR SETUP "	60 secs	This message will appear when the " OK"button is pressed.	
11	the window of "BRIGHTNESS "	60 secs	This message will appear when the BRIGHTNESS button is pressed.	
12	" SELECTED INPUT NOT AVAILABLE "	3 secs	When just one input (analog or digital), press "input switch" or hot key, then after show this warning message 3 sec, return to original input.	
13	SECURITY PROTECTED, THIS MONITOR IS GOING TO ENTER POWER SAVING MODE IN 15 SECONDS	15 secs	This warning appears when the security was set ON and someone takes out from the client PC	
14	SECURITY PROTECTED, THIS MONITOR IS GOING TO ENTER POWER SAVING MODE IN 15 SECONDS	1 mins	This warning appears when Asset management Server sends power saving command to client PC	
15	" the window of VOLUME "	60 secs	This message will appear when the VOLUME button is pressed.	

Electrical instructions(190X6)

1. General points

1.1 During the test and measuring, supply a distortion free AC mains voltage to the apparatus via an isolated transformer with low internal resistance.

1.2 All measurements mentioned hereafter are carried out at a normal mains voltage (90 - 132 VAC for USA version, 195 -264 VAC for EUROPEAN version, or 90 - 264 VAC for the model with full range power supply, unless otherwise stated.)

1.3 All voltages are to be measured or applied with respect to ground, unless otherwise stated.

Note: don't use heat-sink as ground.

1.4 The test has to be done on a complete set including LCD panel After 30 minutes warm-up at least in a room with temperature of 25 +/- 5 degree C.

1.5 All values mentioned in these test instruction are only applicable of a well aligned apparatus, with correct signal.

1.6 The letters symbols (B) and (S) placed behind the test instruction denotes (B): carried out 100% inspection at assembly line
(S): carried out test by sampling

1.7 The white balance (color temperature) has to be tested in subdued lighted room.

1.8 Repetitive power on / off cycle are allowed except it should be avoided within 6 sec.

2. Input signal

2.1 Signal type

2.1.1 Video signal input

Signal source: pattern generator format as the Spec

Reference generator: QuantumData 802G

The input signals can be applied in two different modes:

1). VESA Analog

The video input consists of red, green, and blue signals. The video signals are analog levels, where 0V corresponds to black and 700mV is the maximum signal amplitude. Input impedance of video pins is 75 ohm +/- 1%.

2). Intel DVI Digital

Input signal: Four channel TMDS signals

2.1.2 Sync signal input

The capability of sync signal inputs shall include separate sync, composite sync and sync on green. input impedance: 2k2 ohms The signals are defined as follow:

Separate sync TTL level, Positive/Negative

Composite sync TTL level, Positive/Negative

Sync on green H-sync TTL level, Positive/Negative

Signal source: pattern generator format as the Spec

Reference generator: QuantumData 802G

2.2 Input signal mode Pre-set 34 modes

PRESET VIDEO RESOLUTION

#	Resolution	H-Frequency	Pixel rate	V-Frequency	Comment
1	640X350	31.5K	25.175	70Hz	IBM VGA 10h
2	720X400	31.5K	28.322	70Hz	IBM VGA 3h
3	640X480	31.5K	25.175	60Hz	
4	640X480	35.0K	30.24	67Hz	
5	640X480	37.9K	31.5	72Hz	
6	640X480	37.5K	31.501	75Hz	
7	640X480	43.3K	36	85Hz	
8	800X600	35.2K	36	56Hz	
9	800X600	37.9K	40	60Hz	
10	800X600	48.1K	50	72Hz	
11	800X600	46.9K	49.498	75Hz	
12	800X600	53.7K	56.251	85Hz	
13	832X624	49.7K	57.28	75Hz	MAC
14	1024X768	48.4K	65	60Hz	
15	1024X768	56.5K	75	70Hz	
16	1024X768	60.0K	78.75	75Hz	
17	1024X768	61.1K	83.096	76Hz	IBM XGA-2
18	1024X768	68.7K	94.5	85Hz	
19	1152X864	54.0K	79.9	60Hz	non-VESA
20	1152X864	67.5K	108	75Hz	
21	1152X864	63.9K	94.5	70Hz	non-VESA
22	1152X870	68.7K	100	75Hz	MAC
23	1152X900	61.8K	92.94	66Hz	SUN Mode IV
24	1152X900	71.8K	108	76Hz	SUN Mode II
25	1280X960	60.0K	108	60Hz	
26	1280X960	75.0K	129.895	75Hz	non-VESA
27	1280X1024	64.0K	108	60Hz	
28	1280X1024	71.7K	117	67Hz	SUN Mode V
29	1280X1024	76.0K	130.223	72Hz	DOS/V
30	1280X1024	80.0K	135	75Hz	
31	1280X1024	81.1K	135.008	76Hz	SUN Mode I
32	688X556	31.3K	27	50Hz	TV-PAL
33	960X720	44.76K	57.58	60Hz	
34	960X720	56.4K	72.42	75Hz	

2.3 Allowed 85 Hz overscan signal mode specified

Once the signal input of PC is 85Hz, this monitor is able to display at least for 10 minutes. An attention signal appears and shows THIS IS 85HZ OVERDRIVE, CHANGE COMPUTER DISPLAY INPUT TO 1280X1024 @ 60 HZ

Dot rate (MHz)	H. Freq (KHz)	Mode	Resolution	V. Freq (Hz)
36.000	43.269	VESA	640 * 480	85.008
5 56.250	53.674	VESA	800 * 600	85.061
94.500	68.677	VESA	1024 * 768	84.997

3. Power Supply (S)

Setup the AC I/P at 90VAC, and Output DC loading at 12V 3.7 Amp, 5V 2.1 Amp,The DC output voltages are 5V +/-0.25V and 12V+/-1.2V.

4. Display Adjustment

4.1 Access to factory mode (RS232) in auto-alignment system

The communication protocol switch to RS232 .

4.2 Auto color adjustment (B)

Apply a 640x480/31kHz/60Hz signal with 16 gray pattern, set Brightness to 100%, and contrast to 50%. Adjust the R. G. B offset, and gain to calibrate the color smoothly and 64-gray level distinguishable.

Check all pre-setting 34 modes.

Electrical instructions(190X6)

4.2 Auto color adjustment (B)

Apply a 640x480/31kHz/60Hz signal with 16 gray pattern, set brightness to 100%,and contrast to 50%.
Adjust the R. G. B offset, and gain to calibrate the color smoothly and 64-gray level distinguishable.
Check all pre-setting 34 modes.

4.3 Adjustment of WHITE-D (B)

Apply a 1280*1024 / 60Hz signal with white pattern, set brightness to 100%, and contrast to 50%. Adjust the R, G, B Sub-Gain, for the screen center, the 1931 CIE chromaticity (X, Y) co-ordinates shall be;

	9300°K	6500°K
x (center)	0.283 ± 0.020	0.313 ± 0.020
y (center)	0.297 ± 0.020	0.329 ± 0.020

Use Minolta CA-110 for color coordinates and luminance check.
Luminance is > 200 Nits in the center of the screen in the panel color when brightness is set to 100% and contrast is set to 100%.

4.4 Adjustment of sRGB

Apply a 1280*1024 / 60Hz signal with white pattern, set brightness to 100%, and contrast to 50%. Adjust the R, G, B Sub-Gain, for the screen center, the 1931 CIE chromaticity (X, Y) co-ordinates shall be;

	sRGB
x(center)	0.313 ± 0.020
y(center)	0.329 ± 0.020
Ynits	180 ± 10

4.5 EEPROM presetting (B)

After finishing all the adjustment, set:

Brightness to 100%
Contrast to 50%
OSD position at middle of screen
COLOR ADJUST to 6500K color temperature.
Stand-Alone set to Off

Electrical instructions(170X6)

1. General points

1.1 During the test and measuring, supply a distortion free AC mains voltage to the apparatus via an isolated transformer with low internal resistance.

1.2 All measurements mentioned hereafter are carried out at a normal mains voltage (90 - 132 VAC for USA version, 195 -264 VAC for EUROPEAN version, or 90 - 264 VAC for the model with full range power supply, unless otherwise stated.)

1.3 All voltages are to be measured or applied with respect to ground, unless otherwise stated.

Note: do not use heat-sink as ground.

1.4 The test has to be done on a complete set including LCD panel after 30 minutes warm-up at least in a room with temperature of 25 +/- 5 degree C.

1.5 All values mentioned in these test instruction are only applicable of a well aligned apparatus, with correct signal.

1.6 The letters symbols (B) and (S) placed behind the test instruction denotes

(B): carried out 100% inspection at assembly line

(S): carried out test by sampling

1.7 The white balance (color temperature) has to be tested in subdued lighted room.

1.8 Repetitive power on / off cycle are allowed except it should be avoided within 6 sec.

2. Input signal

2.1 Signal type

2.1.1 Video signal input

Signal source: pattern generator format as the SPEC

Reference generator: QuantumData 802G

The input signals can be applied in two different modes:

1). VESA Analog

The video input consists of red, green, and blue signals.

The video signals are analog levels, where 0V corresponds to black and 700mV is the maximum signal amplitude. Input impedance of video pins is 75 ohm +/- 1%.

2). Intel DVI Digital

Input signal: Four channel TMDS signals

2.1.2 Sync signal input

The capability of sync signal inputs shall include separate sync, composite sync sync on green. input impedance: 2k2 ohms

The signals are defined as follow:

Separate sync TTL level, Positive/Negative

Composite sync TTL level, Positive/Negative

Sync on green H-sync TTL level, Positive/Negative

Signal source: pattern generator format as the spec

Reference generator: QuantumData 802G

2.2 Input signal mode

Pre-set 34 modes

PRESET VIDEO RESOLUTION

#	Resolution	H-Frequency	Pixel rate	V-Frequency	Comment
1	640X350	31.5K	25.175	70Hz	IBM VGA 10h
2	720X400	31.5K	28.322	70Hz	IBM VGA 3h
3	640X480	31.5K	25.175	60Hz	
4	640X480	35.0K	30.24	67Hz	
5	640X480	37.9K	31.5	72Hz	
6	640X480	37.5K	31.501	75Hz	
7	640X480	43.3K	36	85Hz	
8	800X600	35.2K	36	56Hz	
9	800X600	37.9K	40	60Hz	
10	800X600	48.1K	50	72Hz	
11	800X600	46.9K	49.498	75Hz	
12	800X600	53.7K	56.251	85Hz	
13	832X624	49.7K	57.28	75Hz	MAC
14	1024X768	48.4K	65	60Hz	
15	1024X768	56.5K	75	70Hz	
16	1024X768	60.0K	78.75	75Hz	
17	1024X768	61.1K	83.096	76Hz	IBM XGA-2
18	1024X768	68.7K	94.5	85Hz	
19	1152X864	54.0K	79.9	60Hz	non-VESA
20	1152X864	67.5K	108	75Hz	
21	1152X864	63.9K	94.5	70Hz	non-VESA
22	1152X870	68.7K	100	75Hz	MAC
23	1152X900	61.8K	92.94	66Hz	SUN Mode IV
24	1152X900	71.8K	108	76Hz	SUN Mode II
25	1280X960	60.0K	108	60Hz	
26	1280X960	75.0K	129.895	75Hz	non-VESA
27	1280X1024	64.0K	108	60Hz	
28	1280X1024	71.7K	117	67Hz	SUN Mode V
29	1280X1024	76.0K	130.223	72Hz	DOS/V
30	1280X1024	80.0K	135	75Hz	
31	1280X1024	81.1K	135.008	76Hz	SUN Mode I
32	688X556	31.3K	27	50Hz	TV-PAL
33	960X720	44.76K	57.58	60Hz	
34	960X720	56.4K	72.42	75Hz	

2.3 Allowed 85 Hz overscan signal mode specified

Once the signal input of PC is 85Hz, this monitor is able to display at least for10 minutes. An attention signal appears and shows THIS IS 85HZ OVERDRIVE, CHANGE COMPUTER DISPLAY INPUT TO 1280X1024 @ 60 HZ

Dot rate (MHz)	H. Freq (KHz)	Mode	Resolution	V. Freq (Hz)
36.000	43.269	VESA	640 * 480	85.008
5 56.250	53.674	VESA	800 * 600	85.061
94.500	68.677	VESA	1024 * 768	84.997

3.power Supply (S)

3.1Setup the AC I/P at 90VAC, and Output DC loading at 12V 3.7 Amp, 5V 2.1 Amp,The DC output voltages are 5V +/- 0.25V and 12V+/-1.2V.

4. Display Adjustment

4.1 Access to factory mode (RS232) in auto-alignment system

The communication protocol switch to RS232 .

4.2 Auto color adjustment (B)

Apply a 640x480/31kHz/60Hz signal with 16 gray pattern, set brightness to 100%, and contrast to 50%.

Adjust the R. G. B offset, and gain to calibrate the color smoothly and 64-gray level distinguishable. Check all pre-setting 34 modes.

Electrical instructions(170X6)

4.3 Adjustment of WHITE-D (B)

Apply a 1280*1024 / 60Hz signal with white pattern, set brightness to 100%, and contrast to 50%. Adjust the R, G, B Sub-Gain, for the screen center, the 1931 CIE chromaticity (X, Y) co-ordinates shall be;

	9300°K	6500°K
x (center)	0.283 ± 0.020	0.313 ± 0.020
y (center)	0.297 ± 0.020	0.329 ± 0.020

Use Minolta CA-110 for color coordinates and luminance check. Luminance is > 200 Nits in the center of the screen in the panel color when brightness is set to 100% and contrast is set to 100%.

4.4 Adjustment of sRGB

Apply a 1280*1024 / 60Hz signal with white pattern, set brightness to 100%, and contrast to 50%. Adjust the R, G, B Sub-Gain, for the screen center, the 1931 CIE chromaticity (X, Y) co-ordinates shall be;

	sRGB
x(center)	0.313 ± 0.020
y(center)	0.329 ± 0.020
Ynits	180 ± 10

5 EEPROM presetting (B)

After finishing all the adjustment, set:

Brightness to 100%
Contrast to 50%
OSD position at middle of screen
COLOR ADJUST to 6500K color temperature
Stand-Alone set to Off

LightFrame™ Digital Reality (LightFrame™ DR) for Windows

Introduction

Philips LightFrame™ DR feature enriches your photo and video experience with preset modes ideal for your favorite applications: Internet, TV/video viewing, photos and gaming. The LightFrame™ DR engine optimizes brightness, sharpness, contrast, color, JPG noise for photos and skin tone for videos.

Installation

First things first: Philips LightFrame™ DR only works with monitors specially built to use this software. Earlier Philips monitors or other manufacturers' monitors will not work with this special software. This software is only for use with Philips 170X6,170P6 and 190X6,190P6 monitors . You can identify compatible Philips monitors by the LightFrame logo on the front of the monitor.

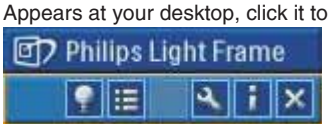
LightFrame™ DR works with true Windows-based programs and DOS-based programs that operate in a Windows environment. It does not work with DOS-based programs operating only in a DOS environment.

To control the LightFrame™ DR feature in your monitor, you'll want install the LightFrame™ DR application found on this CD-ROM. To install LightFrame™ DR, place the CD in your CD-ROM drive. When the CD menu appears on your screen,

1) select preferred language 2) select model number (170X6 or 190X6)
3) click on *Install LightFrame™ Digital Reality*.

Follow the on-screen prompts to properly install the program. The software checks to see if you have a compatible monitor. You must agree to the license terms in order to install the software.

After installation, the LightFrame™ DR shortcut icon automatically Appears at your desktop, click it to load the control bar on screen.



Use Tips

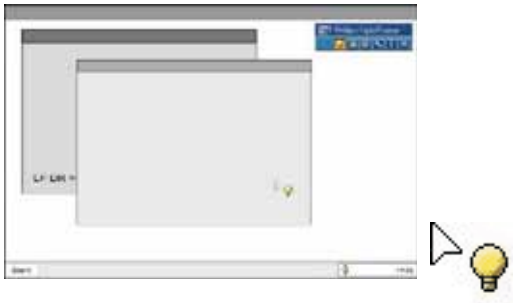
1. Cursor with a yellow light bulb versus a blue light bulb

Your mouse pointer takes the shape of a light bulb to indicate that LightFrame™ DR is ready to activate or deactivate a target window that contains photos, videos or other content that can be enhanced. A yellow light bulb means that you are moving over a window where LightFrame™ DR can be activated. Click on the window to activate enhancement. A blue light bulb appears when moving over an activated window. Click on the window to de-activate LightFrame™ DR.

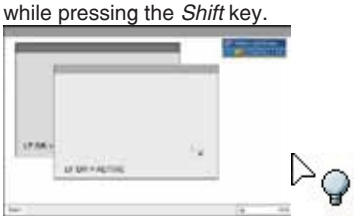
Cursor examples

Here is a list of LightFrame™ DR cursors.

This is the default cursor displayed when you move over a non-LightFrame™ DR enhanced window or area. Clicking and dragging this cursor over a Window or area activates LightFrameTM DR enhancement.



Your cursor becomes a yellow light bulb when it passes over a non-active window to indicate that LightFrame™ DR can be activated in the selected window. Click to activate LightFrame™ DR in the selected window. To activate LightFrame™ DR simultaneously in a total of up to eight windows, click on the selected windows one-by-one while pressing the *Shift* key.



Your cursor becomes a blue light bulb when it passes over an active LightFrame™ DR window. Click to deactivate LightFrame™ DR in the selected window.

The normal cursor is restored after you click on a target without pressing the shift key or after you drag a rectangle.

2. LightFrame™ DR control bar

The LightFrame™ DR control bar appears at the top of screen after any LightFrame™ DR function is activated.The control bar is another upgrade that helps you run all LightFrame™ Digital Reality's neat, new features. The illustration below describes the tasks each button performs.

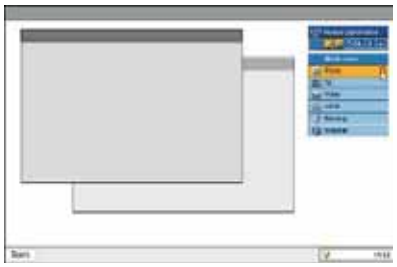
To drag the control bar to any preferred area of your screen, left click the LightFrame™ DR logo. (See examples below) This area is not a button.

	Activate or deactivate LightFrame™ DR icon	Turns LightFrame™ DR on and off. When LightFrame™ DR is active in a selected window, the icon changes from blue to yellow.
	Activate or deactivate the mode menu icon	The default mode menu icon appears when no mode is selected. When you select the photo, Internet or other mode, the icon for the selected mode appears.
	Deactivate all LightFrame™ DR windows icon	Deactivates all LightFrame™ DR windows. This function is only visible when LightFrame™ DR windows are active.
	Properties icon	Provides access to the Properties menu, which includes these options: LightFrame™ DR auto start: Yes/no Position: LightFrame™ DR Always on top Warning messages: On/off Target selection: Automatic/manual Monitor selection: Chose among two monitors connected to the same PC Place LightFrame™ DR icon in the taskbar: Yes/no
	Info mode icon	Activates and deactivates the Info mode, which provides information about toolbar and menu items as well as access to Help files.
	Exit icon	Click to exit the LightFrame™ DR control bar

3. Optimizing LightFrame™ DR settings

Here's how to optimize LightFrame™ DR settings to your personal preferences:

3. Optimizing LightFrame™ DR settings
Here's how to optimize LightFrame™ DR settings to your personal preferences:
1.Select your desired mode from the mode Menu. Click to open the mode.



2.The settings menu

3.Change settings by pulling the color bar or pressing the plus (+) or minus (-) button to move incrementally to the desired levels.

When you're finished, click on the Mode icon to exit the menu.
4. LightFrame™ Hot Key
The LightFrame™ Hot Key is located at front of LightFrame™ DR monitor. The blue LED is on when LightFrame™ is activated and off when the feature is deactivated. A touch on the Hot Key quickly provides full screen enhancement in your choice of the Internet, Photo or Video-TV mode.
When you touch the front button, a small OSD window opens on your screen directly above the button location.
Use this screen to select the best full screen mode for the application you're working with. Press continuously on the Hot Key to scroll through the available options.

1) When you touch the LightFrame™ Hot Key, an OSD window opens. Touch the button continually to scroll among the available Internet, Photo and Video-TV modes. As a mode becomes available for selection, its color changes from blue to yellow. Once you reach the desired mode, remove your finger from the Hot Key. After three seconds, the mode you have selected will be confirmed and the OSD window will automatically close.

2) Touch the LightFrame™ DR Hot Key for three seconds to enter the LightFrame™ demo mode. To exit the demonstration mode, press the hot key again.

5. Language
While English is the default language of LightFrame™ DR, Dutch, French, German, Italian, Portuguese, Spanish, Simplified Chinese, Traditional Chinese and Korean are supported. LightFrame™ DR will detect the language of computer system OS and select the language automatically.

Notes

Philips LightFrame™ DR only works with monitors specially built to use this software. If LightFrame™ DR detects that your monitor is not LightFrame™ DR-compatible, a message appears on the monitor screen. If you see this message, you can abort or continue the installation; however, if you continue the installation, LightFrame™ DR will probably not work on the monitor.

How to use LightFrame™ DR

After installation, LightFrame™ DR shortcut icon appears on your screen whenever the computer is started.
To learn more about using LightFrame™ Digital Reality, please refer to the help information, which is available after installation.

Compatibility

This version of LightFrame™ DR is compatible with:
Windows® XP
Windows® 2000 Professional Edition with Service Pack 2

How to download your upgraded LF DR Installation file

Visit http://www.philips.com/support

General

DDC Data Re-programming
In case the DDC data memory IC or main EEPROM which storage all factory settings were replaced due to a defect, the serial numbers have to be re-programmed"Analog DDC IC, & EEPROM".
It is advised to re-soldered DDC IC and main EEPROM from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

Additional information
Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification Data(EDID) information may be also obtained from VESA.

System and equipment requirements

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98 .
   You have to Install the EDID_PORT_Tool under Win2000/XP . As Fig. 1 .

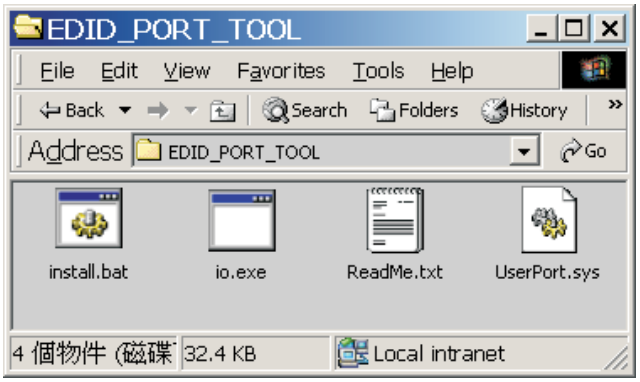


Fig. 1

A. Copy the "UserPort.sys" to C:\WINNT\system32\drivers(win2000)
   C:\WINDOWS\system32\drivers(winXP)
B. Running " io.exe" everytime, Before you start to programming edid data .

3. EDID45.exe program .
4. DDC 2BI-ISP TOOL:

Inclusion :
A. DDC2BI-ISP TOOL(3138 106 10396) x1 (as Fig. 2)
B. Printer cable x1
c. (D-Sub) to (D-Sub) cable x2
D. D-SUB to DVI cable X1

Note: The EDID46.EXE is a windows-based program, which cannot be run in MS-DOS.

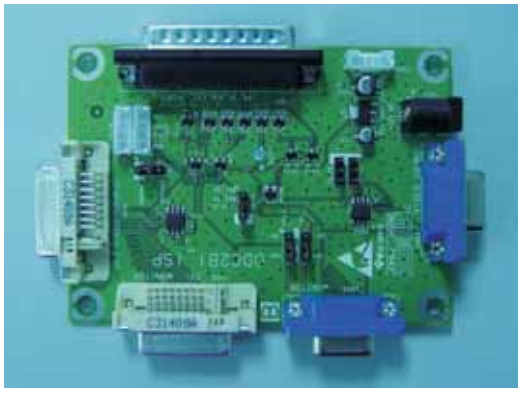


Fig. 2

Pin Assignment

The digital only connector contains 24 signal contacts organized in three rows of eight contacts. Signal pin assignments are listed in the following table:

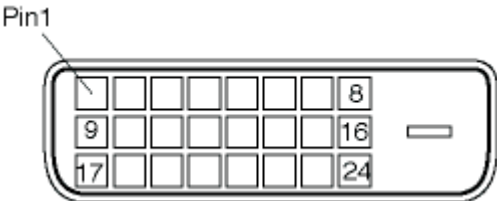


Fig. 3

Pin No.	Description
1	T.M.D.S. data2-
2	T.M.D.S. data2+
3	T.M.D.S. data2 shield
4	No Connect
5	No Connect
6	DDC clock
7	DDC data
8	No Connect
9	T.M.D.S. data1-
10	T.M.D.S. data1+
11	T.M.D.S. data1 shield
12	No Connect
13	No Connect
14	+5V Power
15	Ground (for +5V) - Cable detect
16	Hot plug detect
17	T.M.D.S. data0-
18	T.M.D.S. data0+
19	T.M.D.S. data0 shield
20	No Connect
21	No Connect
22	T.M.D.S clock shield
23	T.M.D.S. clock+
24	T.M.D.S. clock-

Fig. 4

Input analog D-sub connector pin assignment

PIN No.	SIGNAL
1	Red video input
2	Green video input / sync on green
3	Blue video input
4	GND
5	GND Cable detect
6	Red video GND
7	Green video GND
8	Blue video GND
9	DDC +3.3V or +5V
10	Logic GND
11	GND
12	Serial data line (SDA)
13	H-sync / H+V
14	V-sync
15	Data clock line (SCL)

DDC Instructions

Configuration and procedure

There are 3 chips contained OSD string, serial number..etc on the circuit board, main EEPROM which storage all factory settings,OSD string. DDC IC which storage 128byte EDID data(serial number ..etc.). Following descirptions are the connection and procedure for Analog /Digital and main EEPROM can be re-programmed along with Analog/Digital IC by enable factory memory data write function on the DDC program (EDID45.EXE).

Initialize alignment box

In order to avoid that monitor entering power saving mode due to sync will cut off by alignment box, it is necessary to initialize alignment box before running programming software (EDID45.EXE). Following steps show you the procedures and connection.

Step 1: Supply 8-12V DC power source to the Alignment box by plugging a DC power cord or using batteries.
Step 2: Connecting printer cable and D-Sub cable of monitor as Fig. 5

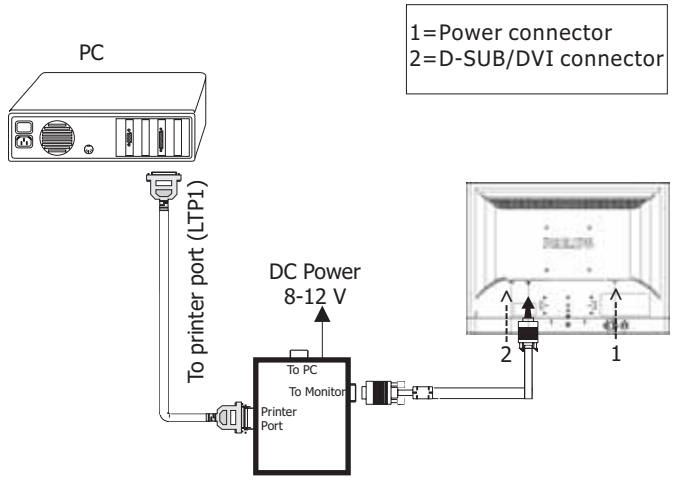


Fig. 5

Step 3: Installation of EDID45.EXE

Method 1: Start on DDC program

Start Microsoft Windows.
1. The Program"EDID45.EXE" in service manual cd-rom be copyed to C:\ .
2. Click Start , choose Run at start menu of Windows as shown In Fig. 6.

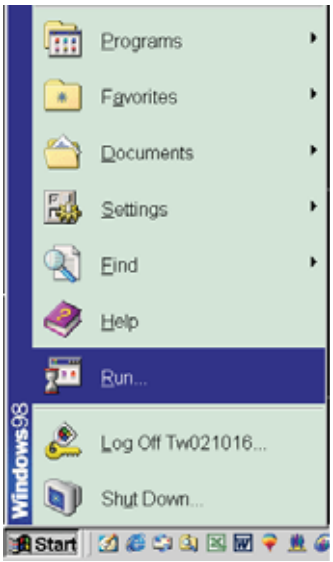


Fig. 6

3. At the submenu, type the letter of your computer's hard disk drive followed by :EDID45 (for example, C:\EDID45, as shown in Fig. 7).

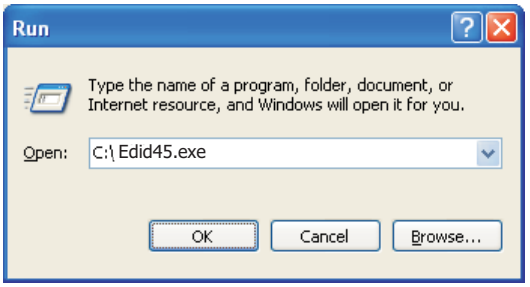


Fig. 7

4. Click OK button. The main menu appears (as shown in Fig. 8). This is for initialize alignment box.

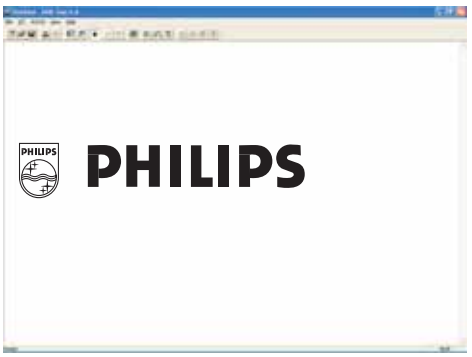


Fig. 8

Note 1: If the connection is improper, you will see the following error message (as shown in Fig. 9) before entering the main menu. Meanwhile, the (read EDID) function will be disable. At this time,
please make sure all cables are connected correctly and

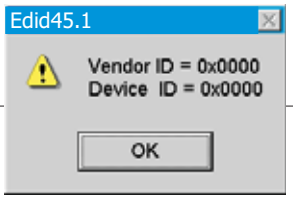


Fig. 9

Note 2: During the loading, EDID45 will verify the EDID data which just loaded from monitor before proceed any further function, once the data structure of EDID can not be recognized, the following error message will appear on the screen as below. Please confirm following steps to avoid this message.

1. The data structure of EDID was incorrect.
2. DDC IC that you are trying to load data is empty.
3. Wrong communication channel has set at configuration setup

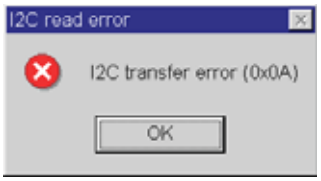


Fig. 10

Re-programming Analog DDC IC

Step 1: After initialize alignment box, connecting all cables and box as shown in Fig. 11

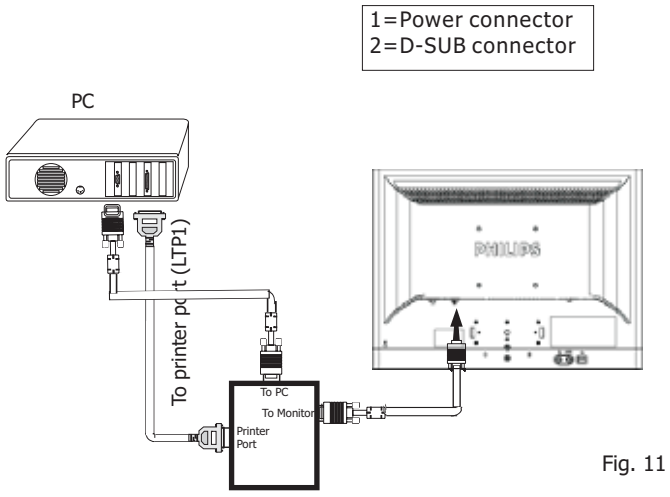


Fig. 11

Step 2: Read DDC data from monitor

1. Click icon as shown in Fig. 11 from the tool bar to bring up the Channels "Configuration Setup" windows as shown in Fig. 12.

Fig. 12

2. Select the DDC2Bi as the communication channel. As shown in Fig. 13.

Fig. 13

3. Click OK button to confirm your selection.

4. Click icon (Read EDID function) to read DDC EDID data from monitor. The EDID codes will display on screen as shown in Fig. 14.

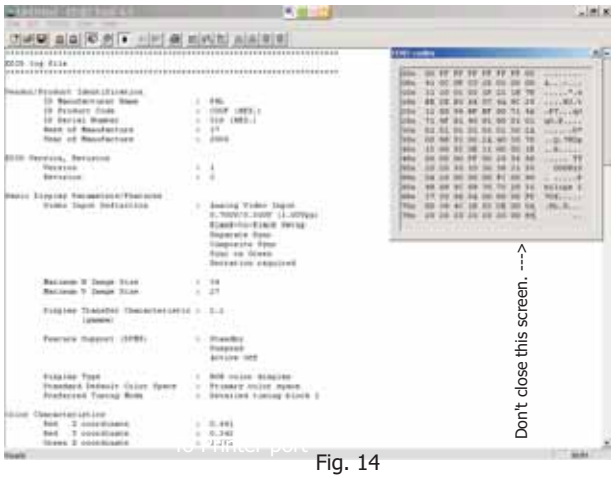


Fig. 14

Step 3: Modify DDC data (verify EDID version, week, year)

1. Click (new function) icon from the tool bar, bring up Step 1 of 9 as shown in Fig. 15 .
EDID45 DDC application provides the function selection and text change (select & fill out) from Step 1 to Step 9.

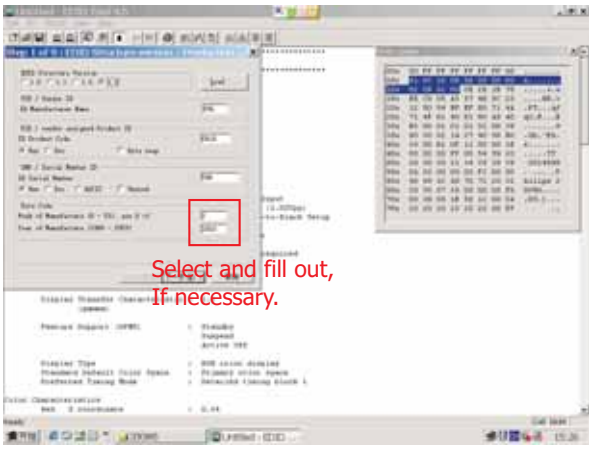


Fig. 15

Step 4: Modify DDC data (Monitor Serial No.)

1. Click Next to step7, bring up Fig. 16.
- Serial number can be filled up or be changed at this moment.
- Click next,Finish to exit the Step window.

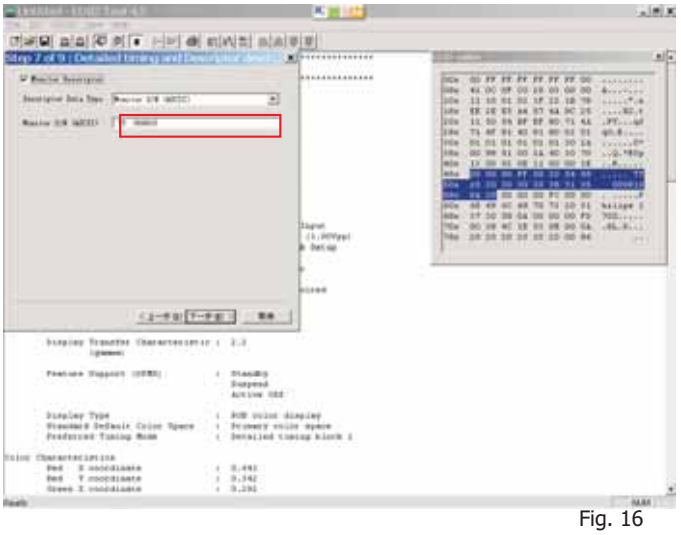


Fig. 16

DDC Instructions

Re-programming Digital DDC IC

Step 1: After initialize alignment box, connecting all cables and box as shown in Fig. 17

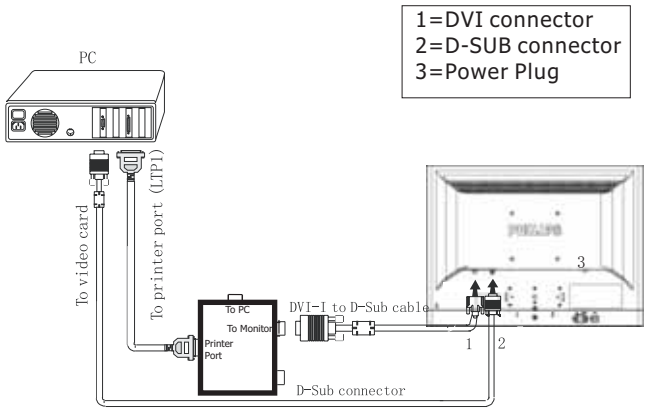


Fig.17

Step 2: Read DDC data from monitor

1. Click icon as shown in Fig. 18 from the tool bar to bring up the Channels "Configuration Setup" windows as shown in Fig. 19.

Fig. 18

2. Select the DDC2Bi as the communication channel. As shown in Fig. 19.

Fig. 19

3. Click OK button to confirm your selection.

4. Click icon (Read EDID function) to read DDC EDID data from monitor. The EDID codes will display on screen as shown in Fig. 20.

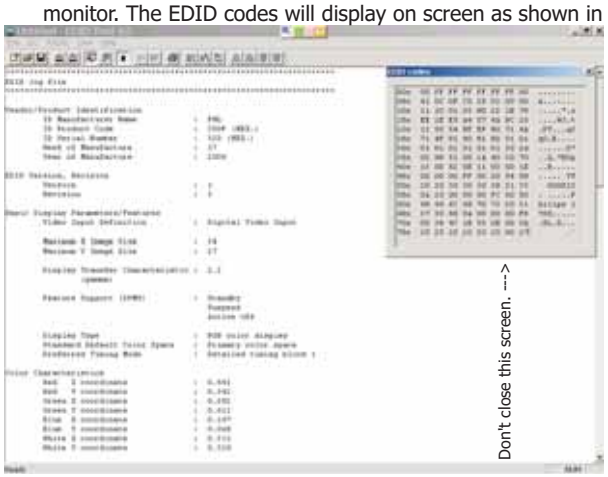


Fig. 20

Step 3: Modify DDC data (verify EDID version, week, year)

1. Click (new function) icon from the tool bar, bring up Step 1 of 9 as shown in Fig. 21 .
EDID45 DDC application provides the function selection and text change (select & fill out) from Step 1 to Step 9.

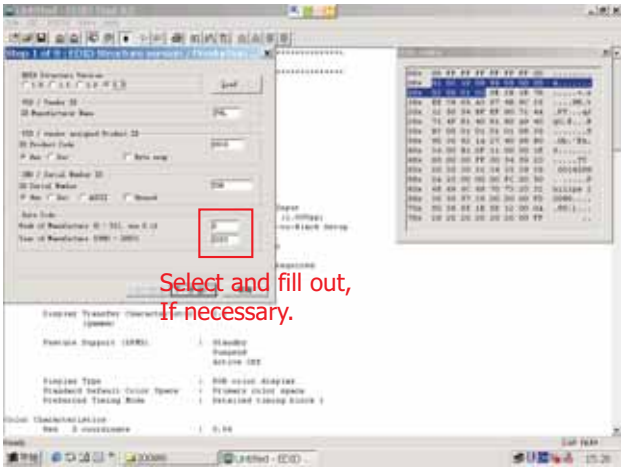


Fig. 21

Step 4: Modify DDC data (Monitor Serial No.)

1. Click Next , bring up Fig. 22. Then select Digital Signal as below

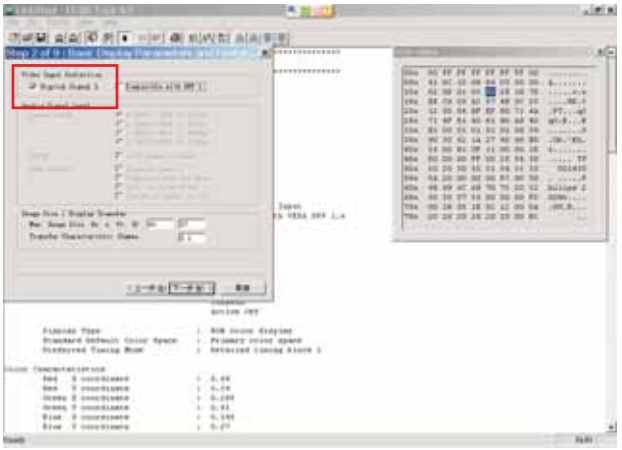


Fig. 22

2. Click Next to step7, bring up Fig. 23.
- Serial number can be filled up or be changed at this moment.
- Click Next, Finish to exit the Step window.

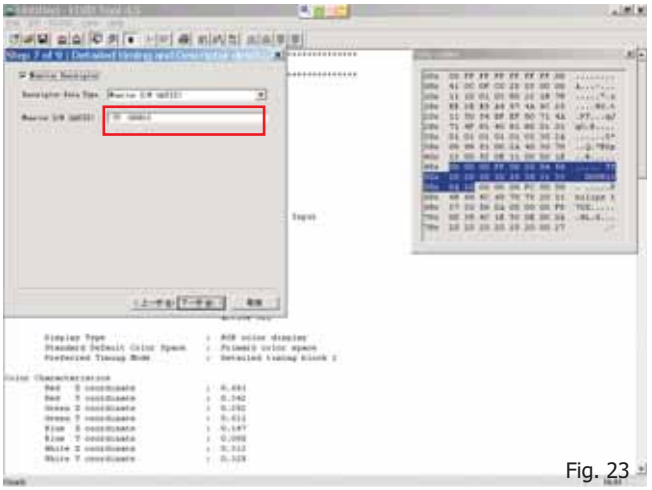


Fig. 23

Step 5: Write DDC data
1. Configuration should be as Fig. 24. And press OK.

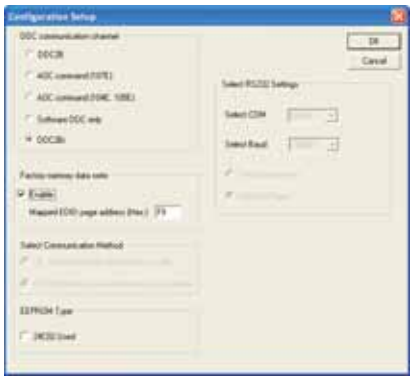


Fig. 24

2. Access Factory Mode

- Turn off monitor.
- [Push AUTO " " & OK " " buttons at the same time and hold it] + [Press po r " " button untill comes out "Windows screen"] => then release all button

3. Click (Write EDID) icon from the tool bar to write DDC data.

Step 6: Save DDC data
Sometimes, you may need to save DDC data as a text file for using in other IC chip. To save DDC data, follow the steps below:

1. Click (Save) icon (or click "file"-> "save as") from the tool bar And give a file name as shown in Fig. 25.
The file type is EDID46 file (*.ddc) which can be open in WordPad. By using WordPad, the texts of DDC data & table (128 bytes, hex code) can be modified. If DDC TEXTS & HEX Table are completely correct, it can be saved as .ddc flie to re-load it into DDC IC for DDC

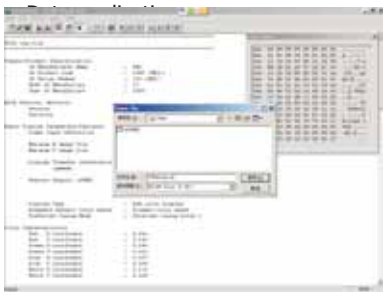


Fig. 25

2. Click Save.

Step 7: Exit DDC program

Pull down the File menu and select Exit as shown in Fig. 26.

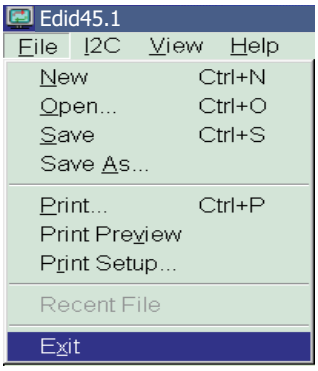


Fig. 26

Step 8: Modify serial number in OSD
-1. Unzip the serial number.zip to your computer, then open the folder as shown in Fig.28.
-2. If use Win98 OS, you can execute SN.exe directly.
If use Win2000 or XP OS, first, you must execute install.bat, then execute SN.exe
-3. Set I2C bus(press the left-top button of operating window) as shown in Fig.28, then press " SET" button.
-4. Set Block4 as shown in Fig.30
-5. key in new serial number, then press " Write" button as shown in Fig.30 , Click " WRITE" button.
-6. It will appear" Serial Number Write OK" , Click" Enter" to finish it.

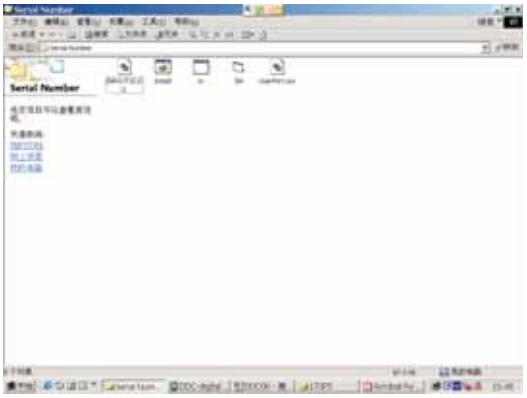


Fig.28

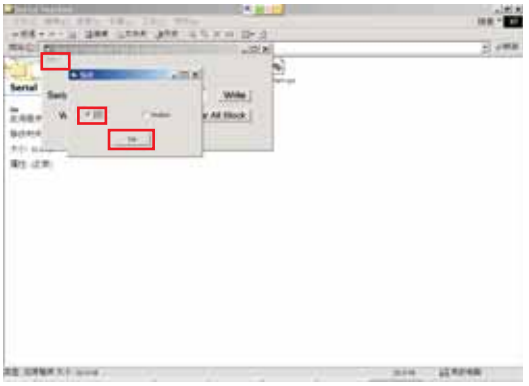


Fig.29

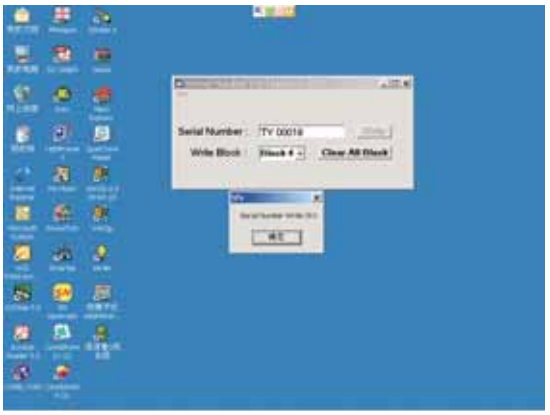


Fig.30

Step9:
-1. Disconnect the monitor power cord and connect it again.
-2. Press the OK button to bring up the OSD main manu.
-3. Re-confirm the serial Number is updated as shown in Fig.31.

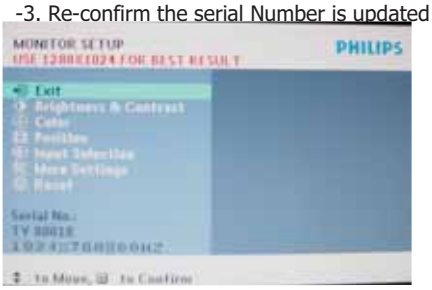


Fig.31

DDC DATA(190X6)

Go to cover page

THE DISPLAY DATA CHANNEL (DDC_2B) CONTENT INCLUDING (FOR 190X6 ANALOG)

****

EDID log file

****

Vendor/Product Identification
- ID Manufacturer Name : PHL
- ID Product Code : C010 (HEX.)
- ID Serial Number : 1234 (HEX.)
- Week of Manufacture : 20
- Year of Manufacture : 2005

EDID Version, Revision
- Version : 1 Revision : 3

Basic Display Parameters/Features
- Video Input Definition : Analog Video Input
  0.700V/0.300V (1.00Vpp)
  Blank-to-Black Setup
  Separate Sync
  Composite Sync
  Sync on Green
  Serration required
- Maximum H Image Size : 38
- Maximum V Image Size : 30
- Display Transfer Characteristic : 2.2(gamma)
- Feature Support (DPMS) : Standby
  Suspend
  Active Off
- Display Type : RGB color display
- Standard Default Color Space : Primary color space
- Preferred Timing Mode : Detailed timing block 1

Color Characteristics
- Red X coordinate : 0.636
- Red Y coordinate : 0.348
- Green X coordinate : 0.292
- Green Y coordinate : 0.618
- Blue X coordinate : 0.142
- Blue Y coordinate : 0.072
- White X coordinate : 0.313
- White Y coordinate : 0.329

Established Timings
- Established Timings I : 720 x 400 @70Hz (IBM,VGA)
  640 x 480 @60Hz (IBM,VGA)
  640 x 480 @67Hz (Apple,Mac II)
  640 x 480 @72Hz (VESA)
  640 x 480 @75Hz (VESA)
  800 x 600 @56Hz (VESA)
  800 x 600 @60Hz (VESA)
- Established Timings II : 800 x 600 @72Hz (VESA)
  800 x 600 @75Hz (VESA)
  832 x 624 @75Hz (Apple,Mac II)
  1024 x 768 @60Hz (VESA)
  1024 x 768 @70Hz (VESA)
  1024 x 768 @75Hz (VESA)
  1280 x 1024 @75Hz (VESA)
- Manufacturer's timings : 1152 x 870 @75Hz (Apple,Mac II)

Standard Timing Identification #1
- Horizontal active pixels : 1152
- Aspect Ratio : 4:3
- Refresh Rate : 70

Standard Timing Identification #2
- Horizontal active pixels : 1152
- Aspect Ratio : 4:3
- Refresh Rate : 75

Standard Timing Identification #3
- Horizontal active pixels : 1280
- Aspect Ratio : 4:3
- Refresh Rate : 60

Standard Timing Identification #4
- Horizontal active pixels : 1280
- Aspect Ratio : 5:4
- Refresh Rate : 60

Detailed Timing #1
- Pixel Clock (MHz) : 135
- H Active (pixels) : 1280
- H Blanking (pixels) : 408
- V Active (lines) : 1024
- V Blanking (lines) : 42
- H Sync Offset (F Porch) (pixels): 48
- H Sync Pulse Width (pixels) : 112
- V Sync Offset (F Porch) (lines) : 1
- V Sync Pulse Width (lines) : 3
- H Image Size (mm) : 376
- V Image Size (mm) : 301
- H Border (pixels) : 0
- V Border (lines) : 0
- Flags : Non-interlaced
  : Normal Display, No stereo
  : Digital Separate sync.
  : Positive Vertical Sync.
  : Positive Horizontal Sync.

Monitor Descriptor #2
- Serial Number : TY 123456

Monitor Descriptor #3
- Monitor Name : Philips 190X

Monitor Descriptor #4
- Monitor Range Limits
- Min. Vt rate Hz : 56
- Max. Vt rate Hz : 76
- Min. Horiz. rate kHz : 30
- Max. Horiz. rate kHz : 83
- Max. Supported Pixel : 140
- No secondary GTF timing formula supported.

Extension Flag : 0

Check sum : 61 (HEX.)

****

EDID data (128 bytes)

****

```
 0: 00  1: ff  2: ff  3: ff  4: ff  5: ff  6: ff  7: 00
 8: 41  9: 0c 10: 10 11: c0 12: 34 13: 12 14: 00 15: 00
16: 14 17: 0f 18: 01 19: 03 20: 1f 21: 26 22: 1e 23: 78
24: ee 25: cd 26: 65 27: a2 28: 59 29: 4a 30: 9e 31: 24
32: 12 33: 50 34: 54 35: bf 36: ef 37: 80 38: 71 39: 4a
40: 71 41: 4f 42: 81 43: 40 44: 81 45: 80 46: 01 47: 01
48: 01 49: 01 50: 01 51: 01 52: 01 53: 01 54: bc 55: 34
56: 00 57: 98 58: 51 59: 00 60: 2a 61: 40 62: 30 63: 70
64: 13 65: 00 66: 78 67: 2d 68: 11 69: 00 70: 00 71: 1e
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 68 97: 69 98: 6c 99: 69 100: 70 101: 73 102: 20 103: 31
104: 39 105: 30 106: 58 107: 0a 108: 00 109: 00 110: 00 111: fd
112: 00 113: 38 114: 4c 115: 1e 116: 53 117: 0e 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 61
```

DDC DATA(190X6)

THE DISPLAY DATA CHANNEL (DDC-2B) CONTENT
INCLUDING (FOR 190X6 DIGITAL)
****
EDID log file
****
Vendor/Product Identification
ID Manufacturer Name : PHL
ID Product Code : C010 (HEX.)
ID Serial Number : 1234 (HEX.)
Week of Manufacture : 20
Year of Manufacture : 2005
EDID Version, Revision
Version : 1
Revision : 3
Basic Display Parameters/Features
Video Input Definition : Digital Video Input
Maximum H Image Size : 38
Maximum V Image Size : 30
Display Transfer Characteristic : 2.2 (gamma)
Feature Support (DPMS) : Standby
Suspend
Active Off
Display Type : RGB color display
Standard Default Color Space : Primary color space
Preferred Timing Mode : Detailed timing block 1
Color Characteristics
Red X coordinate : 0.636
Red Y coordinate : 0.348
Green X coordinate : 0.292
Green Y coordinate : 0.618
Blue X coordinate : 0.142
Blue Y coordinate : 0.072
White X coordinate : 0.313
White Y coordinate : 0.329
Established Timings
Established Timings I : 720 x 400 @70Hz (IBM,VGA)
640 x 480 @60Hz (IBM,VGA)
640 x 480 @67Hz (Apple,Mac II)
640 x 480 @72Hz (VESA)
640 x 480 @75Hz (VESA)
800 x 600 @56Hz (VESA)
800 x 600 @60Hz (VESA)
Established Timings II : 800 x 600 @72Hz (VESA)
800 x 600 @75Hz (VESA)
832 x 624 @75Hz (Apple,Mac II)
1024 x 768 @60Hz (VESA)
1024 x 768 @70Hz (VESA)
1024 x 768 @75Hz (VESA)
1280 x 1024 @75Hz (VESA)
Manufacturer's timings : 1152 x 870 @75Hz (Apple,Mac II)
Standard Timing Identification #1
Horizontal active pixels : 1152
Aspect Ratio : 4:3
Refresh Rate : 70
Standard Timing Identification #2
Horizontal active pixels : 1152
Aspect Ratio : 4:3
Refresh Rate : 75
Standard Timing Identification #3
Horizontal active pixels : 1280
Aspect Ratio : 4:3
Refresh Rate : 60
Standard Timing Identification #4
Horizontal active pixels : 1280
Aspect Ratio : 5:4
Refresh Rate : 60
Detailed Timing #1
Pixel Clock (MHz) : 135
H Active (pixels) : 1280
H Blanking (pixels) : 408
V Active (lines) : 1024
V Blanking (lines) : 42
H Sync Offset (F Porch) (pixels): 48
H Sync Pulse Width (pixels) : 112
V Sync Offset (F Porch) (lines) : 1
V Sync Pulse Width (lines) : 3
H Image Size (mm) : 376
V Image Size (mm) : 301
H Border (pixels) : 0
V Border (lines) : 0
Flags : Non-interlaced
: Normal Display, No stereo
: Digital Separate sync.
: Positive Vertical Sync.
: Positive Horizontal Sync.
Monitor Descriptor #2
Serial Number : TY 123456
Monitor Descriptor #3
Monitor Name : Philips 190X
Monitor Descriptor #4
Monitor Range Limits
Min. Vt rate Hz : 56
Max. Vt rate Hz : 76
Min. Horiz. rate kHz : 30
Max. Horiz. rate kHz : 83
Max. Supported Pixel : 140
No secondary GTF timing formula supported.
Extension Flag : 0
Check sum : 00 (HEX.)
****
EDID data (128 bytes)
****

0: 00 1: ff 2: ff 3: ff 4: ff 5: ff 6: ff 7: 00
8: 41 9: 0c 10: 10 11: c0 12: 34 13: 12 14: 00 15: 00
16: 14 17: 0f 18: 01 19: 03 20: 80 21: 26 22: 1e 23: 78
24: ee 25: cd 26: 65 27: a2 28: 59 29: 4a 30: 9e 31: 24
32: 12 33: 50 34: 54 35: bf 36: ef 37: 80 38: 71 39: 4a
40: 71 41: 4f 42: 81 43: 40 44: 81 45: 80 46: 01 47: 01
48: 01 49: 01 50: 01 51: 01 52: 01 53: 01 54: bc 55: 34
56: 00 57: 98 58: 51 59: 00 60: 2a 61: 40 62: 30 63: 70
64: 13 65: 00 66: 78 67: 2d 68: 11 69: 00 70: 00 71: 1e
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 68 97: 69 98: 6c 99: 69 100: 70 101: 73 102: 20 103: 31
104: 39 105: 30 106: 58 107: 0a 108: 00 109: 00 110: 00 111: fd
112: 00 113: 38 114: 4c 115: 1e 116: 53 117: 0e 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 00

DDC DATA(170X6)

Go to cover page

THE DISPLAY DATA CHANNEL (DDC_2B) CONTENT
INCLUDING (FOR 170X6 ANALOG):
****
EDID log file
****
Vendor/Product Identification
ID Manufacturer Name : PHL
ID Product Code : C00F (HEX.)
ID Serial Number : 1234 (HEX.)
Week of Manufacture : 16
Year of Manufacture : 2005
EDID Version, Revision
Version : 1
Revision : 3
Basic Display Parameters/Features
Video Input Definition : Analog Video Input
0.700V/0.300V (1.00Vpp)
Blank-to-Black Setup
Separate Sync
Composite Sync
Sync on Green
Serration required
Maximum H Image Size : 34
Maximum V Image Size : 27
Display Transfer Characteristic : 2.2 (gamma)
Feature Support (DPMS) : Standby
Suspend
Active Off
Display Type : RGB color display
Standard Default Color Space : Primary color space
Preferred Timing Mode : Detailed timing block 1
Color Characteristics
Red X coordinate : 0.641
Red Y coordinate : 0.342
Green X coordinate : 0.292
Green Y coordinate : 0.611
Blue X coordinate : 0.147
Blue Y coordinate : 0.068
White X coordinate : 0.313
White Y coordinate : 0.329
Established Timings
Established Timings I : 720 x 400 @70Hz (IBM,VGA)
640 x 480 @60Hz (IBM,VGA)
640 x 480 @67Hz (Apple,Mac II)
640 x 480 @72Hz (VESA)
640 x 480 @75Hz (VESA)
800 x 600 @56Hz (VESA)
800 x 600 @60Hz (VESA)
Established Timings II : 800 x 600 @72Hz (VESA)
800 x 600 @75Hz (VESA)
832 x 624 @75Hz (Apple,Mac II)
1024 x 768 @60Hz (VESA)
1024 x 768 @70Hz (VESA)
1024 x 768 @75Hz (VESA)
1280 x 1024 @75Hz (VESA)
Manufacturer's timings : 1152 x 870 @75Hz (Apple,Mac II)
Standard Timing Identification #1
Horizontal active pixels : 1152
Aspect Ratio : 4:3
Refresh Rate : 70
Horizontal active pixels : 1152
Aspect Ratio : 4:3
Refresh Rate : 75
Standard Timing Identification #2
Standard Timing Identification #3
Horizontal active pixels : 1280
Aspect Ratio : 4:3
Refresh Rate : 60
Standard Timing Identification #4
Horizontal active pixels : 1280
Aspect Ratio : 5:4
Refresh Rate : 60
Detailed Timing #1
Pixel Clock (MHz) : 108
H Active (pixels) : 1280
H Blanking (pixels) : 408
V Active (lines) : 1024
V Blanking (lines) : 42
H Sync Offset (F Porch) (pixels): 48
H Sync Pulse Width (pixels) : 112
V Sync Offset (F Porch) (lines) : 1
V Sync Pulse Width (lines) : 3
H Image Size (mm) : 338
V Image Size (mm) : 270
H Border (pixels) : 0
V Border (lines) : 0
Flags : Non-interlaced
: Normal Display, No stereo
: Digital Separate sync.
: Positive Vertical Sync.
: Positive Horizontal Sync.
Monitor Descriptor #2
Serial Number : TY 123456
Monitor Descriptor #3
Monitor Name : Philips 170X
Monitor Descriptor #4
Monitor Range Limits
Min. Vt rate Hz : 56
Max. Vt rate Hz : 76
Min. Horiz. rate kHz : 30
Max. Horiz. rate kHz : 83
Max. Supported Pixel : 140
No secondary GTF timing formula supported.
Extension Flag : 0
Check sum : 6B (HEX.)
****
EDID data (128 bytes)
****

0: 00 1: ff 2: ff 3: ff 4: ff 5: ff 6: ff 7: 00
8: 41 9: 0c 10: 0f 11: c0 12: 34 13: 12 14: 00 15: 00
16: 10 17: 0f 18: 01 19: 03 20: 1f 21: 22 22: 1b 23: 78
24: ee 25: 2e 26: e5 27: a4 28: 57 29: 4a 30: 9c 31: 25
32: 11 33: 50 34: 54 35: bf 36: ef 37: 80 38: 71 39: 4a
40: 71 41: 4f 42: 81 43: 40 44: 81 45: 80 46: 01 47: 01
48: 01 49: 01 50: 01 51: 01 52: 01 53: 01 54: 30 55: 2a
56: 00 57: 98 58: 51 59: 00 60: 2a 61: 40 62: 30 63: 70
64: 13 65: 00 66: 52 67: 0e 68: 11 69: 00 70: 00 71: 1e
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 68 97: 69 98: 6c 99: 69 100: 70 101: 73 102: 20 103: 31
104: 37 105: 30 106: 58 107: 0a 108: 00 109: 00 110: 00 111: fd
112: 00 113: 38 114: 4c 115: 1e 116: 53 117: 0e 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 6b

DDC DATA(170X6)

THE DISPLAY DATA CHANNEL (DDC-2B) CONTENT
INCLUDING (FOR 170X6 DIGITAL)
****
EDID log file
****
Vendor/Product Identification
ID Manufacturer Name : PHL
ID Product Code : C00F (HEX.)
ID Serial Number : 1234 (HEX.)
Week of Manufacture : 16
Year of Manufacture : 2005
EDID Version, Revision
Version : 1
Revision : 3
Basic Display Parameters/Features
Video Input Definition : Digital Video Input
Maximum H Image Size : 34
Maximum V Image Size : 27
Display Transfer Characteristic : 2.2 (gamma)
Feature Support (DPMS) : Standby
Suspend
Active Off
Display Type : RGB color display
Standard Default Color Space : Primary color space
Preferred Timing Mode : Detailed timing block 1
Color Characteristics
Red X coordinate : 0.641
Red Y coordinate : 0.342
Green X coordinate : 0.292
Green Y coordinate : 0.611
Blue X coordinate : 0.147
Blue Y coordinate : 0.068
White X coordinate : 0.313
White Y coordinate : 0.329
Established Timings
Established Timings I : 720 x 400 @70Hz (IBM,VGA)
640 x 480 @60Hz (IBM,VGA)
640 x 480 @67Hz (Apple,Mac II)
640 x 480 @72Hz (VESA)
640 x 480 @75Hz (VESA)
800 x 600 @56Hz (VESA)
800 x 600 @60Hz (VESA)
Established Timings II : 800 x 600 @72Hz (VESA)
800 x 600 @75Hz (VESA)
832 x 624 @75Hz (Apple,Mac II)
1024 x 768 @60Hz (VESA)
1024 x 768 @70Hz (VESA)
1024 x 768 @75Hz (VESA)
1280 x 1024 @75Hz (VESA)
Manufacturer's timings : 1152 x 870 @75Hz (Apple,Mac II)
Standard Timing Identification #1
Horizontal active pixels : 1152
Aspect Ratio : 4:3
Refresh Rate : 70
Standard Timing Identification #2
Horizontal active pixels : 1152
Aspect Ratio : 4:3
Refresh Rate : 75
Standard Timing Identification #3
Horizontal active pixels : 1280
Aspect Ratio : 4:3
Refresh Rate : 60
Standard Timing Identification #4
Horizontal active pixels : 1280
Aspect Ratio : 5:4
Refresh Rate : 60
Detailed Timing #1
Pixel Clock (MHz) : 108
H Active (pixels) : 1280
H Blanking (pixels) : 408
V Active (lines) : 1024
V Blanking (lines) : 42
H Sync Offset (F Porch) (pixels): 48
H Sync Pulse Width (pixels) : 112
V Sync Offset (F Porch) (lines) : 1
V Sync Pulse Width (lines) : 3
H Image Size (mm) : 338
V Image Size (mm) : 270
H Border (pixels) : 0
V Border (lines) : 0
Flags : Non-interlaced
: Normal Display, No stereo
: Digital Separate sync.
: Positive Vertical Sync.
: Positive Horizontal Sync.
Monitor Descriptor #2
Serial Number : TY 123456
Monitor Descriptor #3
Monitor Name : Philips 170X
Monitor Descriptor #4
Monitor Range Limits
Min. Vt rate Hz : 56
Max. Vt rate Hz : 76
Min. Horiz. rate kHz : 30
Max. Horiz. rate kHz : 83
Max. Supported Pixel : 140
No secondary GTF timing formula supported.
Extension Flag : 0
Check sum : 0A (HEX.)

****
EDID data (128 bytes)
****

0: 00 1: ff 2: ff 3: ff 4: ff 5: ff 6: ff 7: 00
8: 41 9: 0c 10: 0f 11: c0 12: 34 13: 12 14: 00 15: 00
16: 10 17: 0f 18: 01 19: 03 20: 80 21: 22 22: 1b 23: 78
24: ee 25: 2e 26: e5 27: a4 28: 57 29: 4a 30: 9c 31: 25
32: 11 33: 50 34: 54 35: bf 36: ef 37: 80 38: 71 39: 4a
40: 71 41: 4f 42: 81 43: 40 44: 81 45: 80 46: 01 47: 01
48: 01 49: 01 50: 01 51: 01 52: 01 53: 01 54: 30 55: 2a
56: 00 57: 98 58: 51 59: 00 60: 2a 61: 40 62: 30 63: 70
64: 13 65: 00 66: 52 67: 0e 68: 11 69: 00 70: 00 71: 1e
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 68 97: 69 98: 6c 99: 69 100: 70 101: 73 102: 20 103: 31
104: 37 105: 30 106: 58 107: 0a 108: 00 109: 00 110: 00 111: fd
112: 00 113: 38 114: 4c 115: 1e 116: 53 117: 0e 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 0a

ISP CABLE FOR CPU

Configuration and procedure

ISP (In System Program) software is provided by Genesis to upgrade the firmware of CPU.

ISP cable is for the interface between "Parallel port of PC" and "15 pin-D-SUB connector of monitor.

System and equipment requirements:
1. An i386 (or above) personal computer or compatible.
2. Microsoft operation system Win 95/98 or Win 2000
3. ISP software
4. ISP cable (3138 106 10213) as shown in Fig.1

Fig.1 ISP CABLE :12NC IS "3138 106 10213".

5.Connect ISP cable and main cord to monitor as shown in Fig.2.

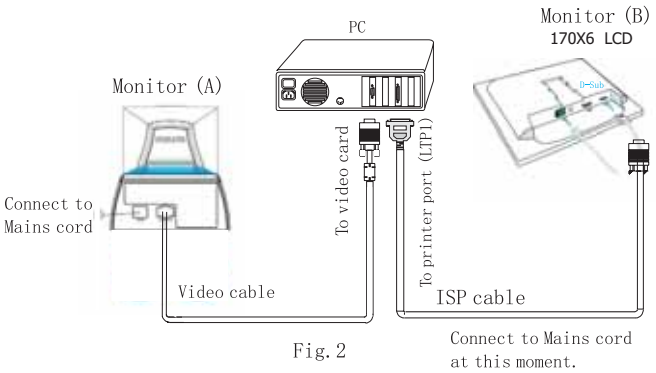


Fig. 2

6. Install and setup the Gprobe 4.5.0.5.exe program

step 1. Create a folder in your PC .for example: D:\170X6
step 2. Copy ISP .Zip into your folder
step 3. Unzip ISP.Zip into your folder as shown in Fig.3
step 4. Double click the Gprobe4.5.0.5.exe icon to install the application as shown Fig.4

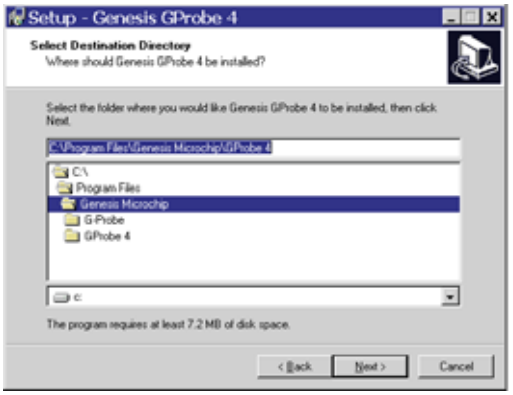

Setup - Genesis GProbe 4
Select Destination Directory
Where should Genesis GProbe 4 be installed?
Select the folder where you would like Genesis GProbe 4 to be installed, then click Next.
C:\Program Files\Genesis Microchip\GProbe 4
C:\
Program Files
Genesis Microchip
G-Probe
GProbe 4
c:
The program requires at least 7.2 MB of disk space.
< Back
Next >
Cancel

Fig.4

Step 5 . Click the next till the setup finished. And creat a short cut on the desktop.

Fig.3

Update the firmware

1. Double click the Gprobe 4 icon

on the desktop ,then appears window as shown in Fig.5
2. Press the options then choose configure Pin as shown in Fig.5
3. From the menu that appears, choose the number 17 in "output pin" and the number 12 in " input pin" as shown in Fig.6

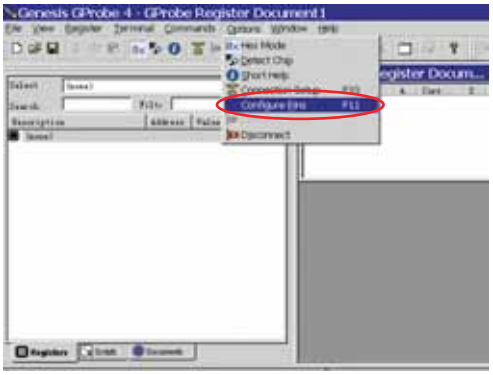


Fig.5

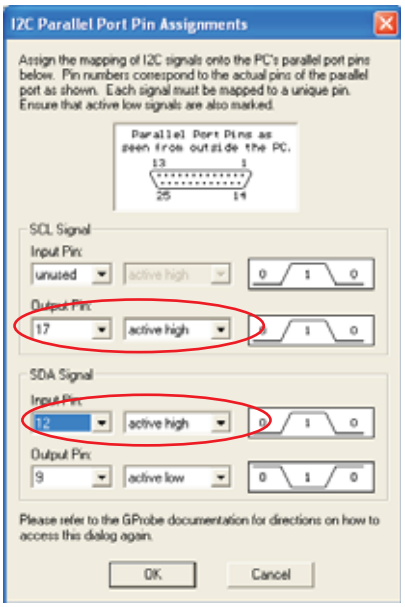

I2C Parallel Port Pin Assignments
Assign the mapping of I2C signals onto the PC's parallel port pins below. Pin numbers correspond to the actual pins of the parallel port as shown. Each signal must be mapped to a unique pin. Ensure that active low signals are also marked.
Parallel Port Pins as seen from outside the PC.
13
1
25
14
SCL Signal
Input Pin:
unused
active high
Output Pin:
17
active high
SDA Signal
Input Pin:
12
active high
Output Pin:
9
active low
Please refer to the GProbe documentation for directions on how to access this dialog again.
OK
Cancel

Fig.6

4. Press the options then choose connection setup as shown in Fig.7

5. From the menu that appears , choose the DDC2Bi3 in "protocol" and the LPT (0x378) in "port" as shown in Fig.8

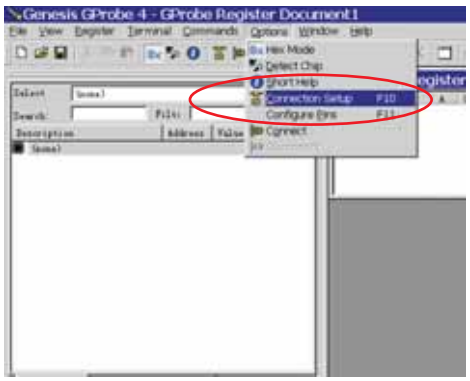


Fig.7

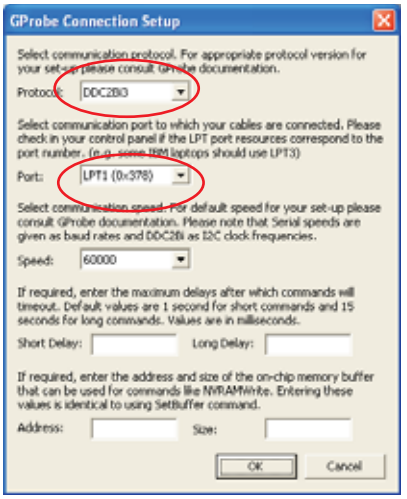

GProbe Connection Setup
Select communication protocol. For appropriate protocol version for your set-up please consult GProbe documentation.
Protocol:
DDC2Bi3
Select communication port to which your cables are connected. Please check in your control panel if the LPT port resources correspond to the port number. (e.g. some IBM laptops should use LPT3)
Port:
LPT1 (0x378)
Select communication speed. For default speed for your set-up please consult GProbe documentation. Please note that Serial speeds are given as baud rates and DDC2Bi as I2C clock frequencies.
Speed:
60000
If required, enter the maximum delays after which commands will timeout. Default values are 1 second for short commands and 15 seconds for long commands. Values are in milliseconds.
Short Delay:
Long Delay:
If required, enter the address and size of the on-chip memory buffer that can be used for commands like NVRAMWrite. Entering these values is identical to using SetBuffer command.
Address:
Size:
OK
Cancel

Fig.8

6. click the "commands" and select the "Batch", as shown in Fig.9, Fig.10

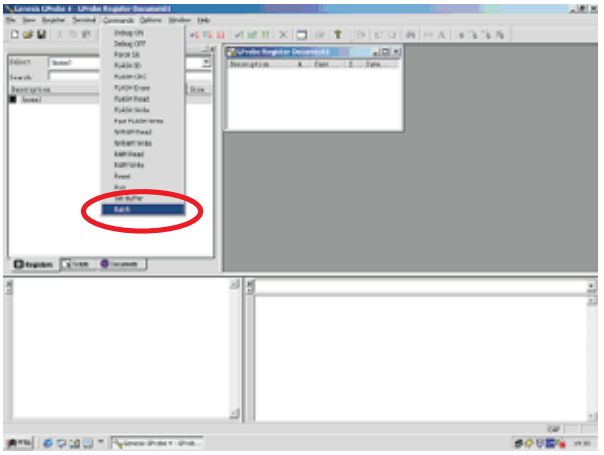


Fig.9

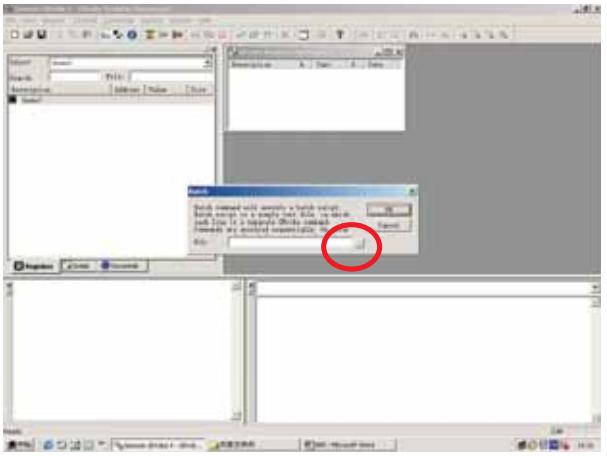


Fig.10

7. Click the button as shown in Fig.10 to browse the Iicisp.txt file in the folder that you created.

Note: you should pay attention to the described path in the licisp.txt file. It must be the same as the file's path that you created.

ISP CABLE for CPU

Go to cover page

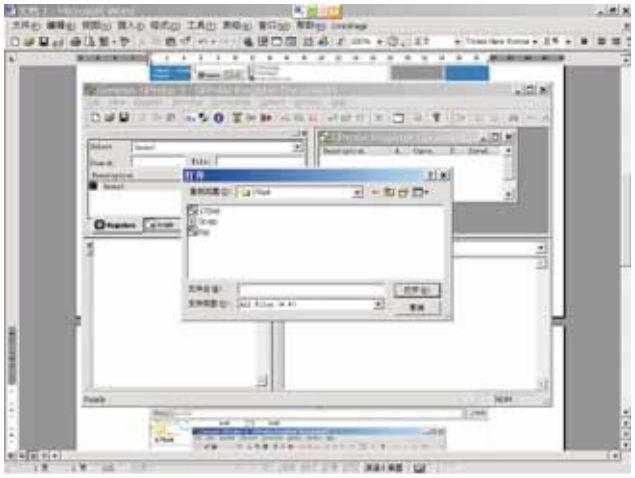
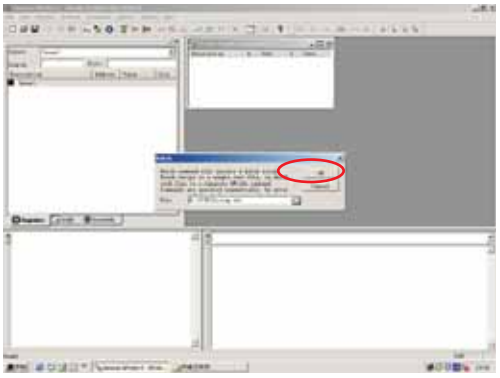
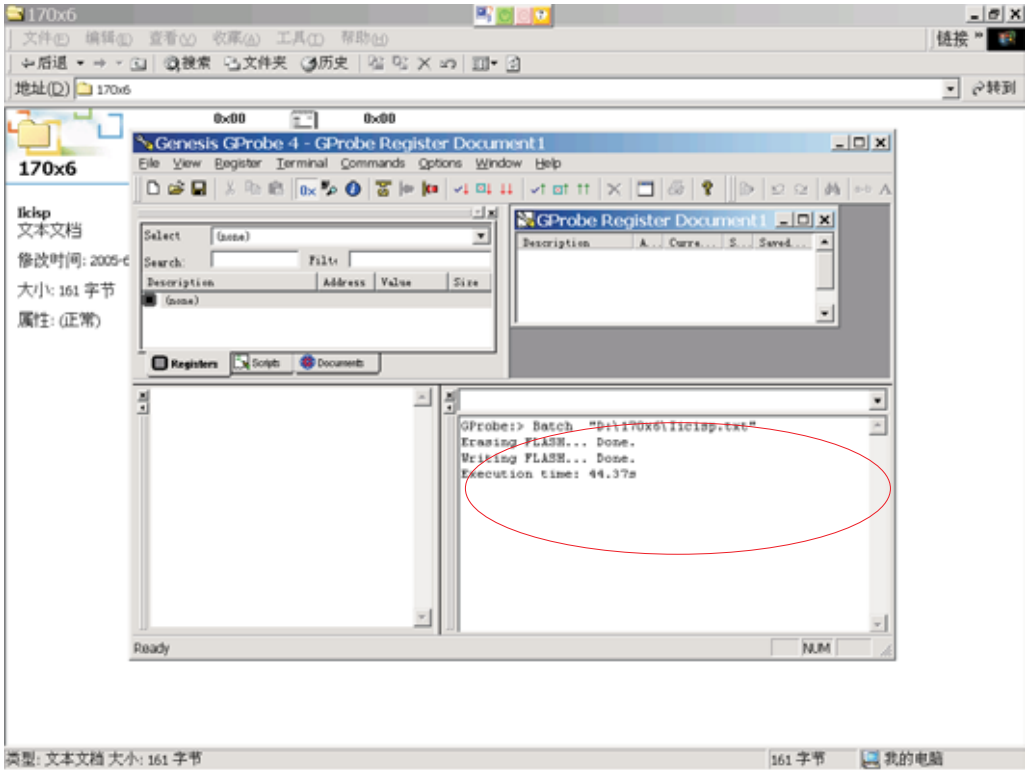


Fig.11 click "OPEN"

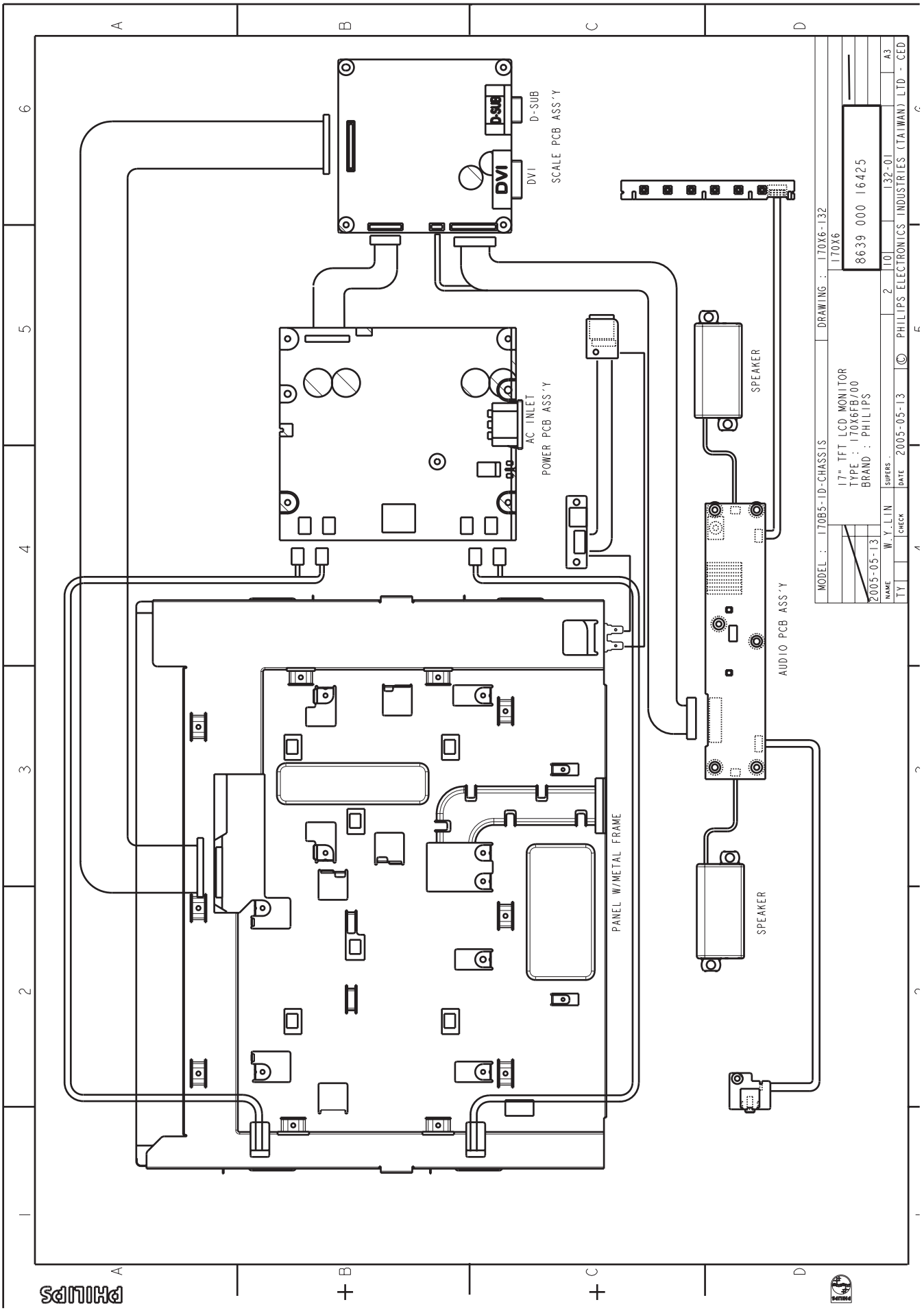


Shut off the AC power
Click the "OK" button and then connect the AC power, after the follow window appears, the update is completed.

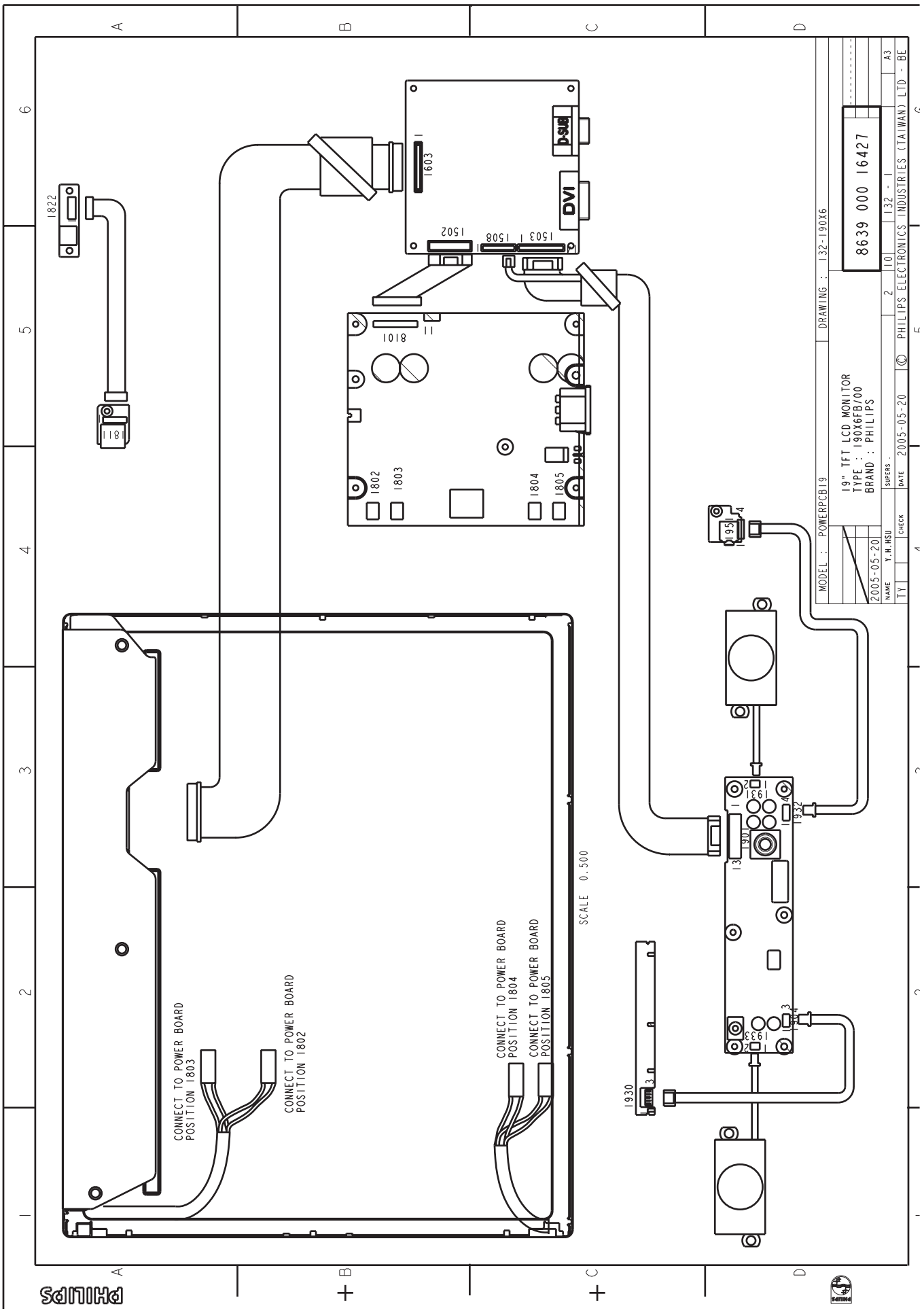


The isp instructions between 170X6 and 190X6 is the same except the hex code

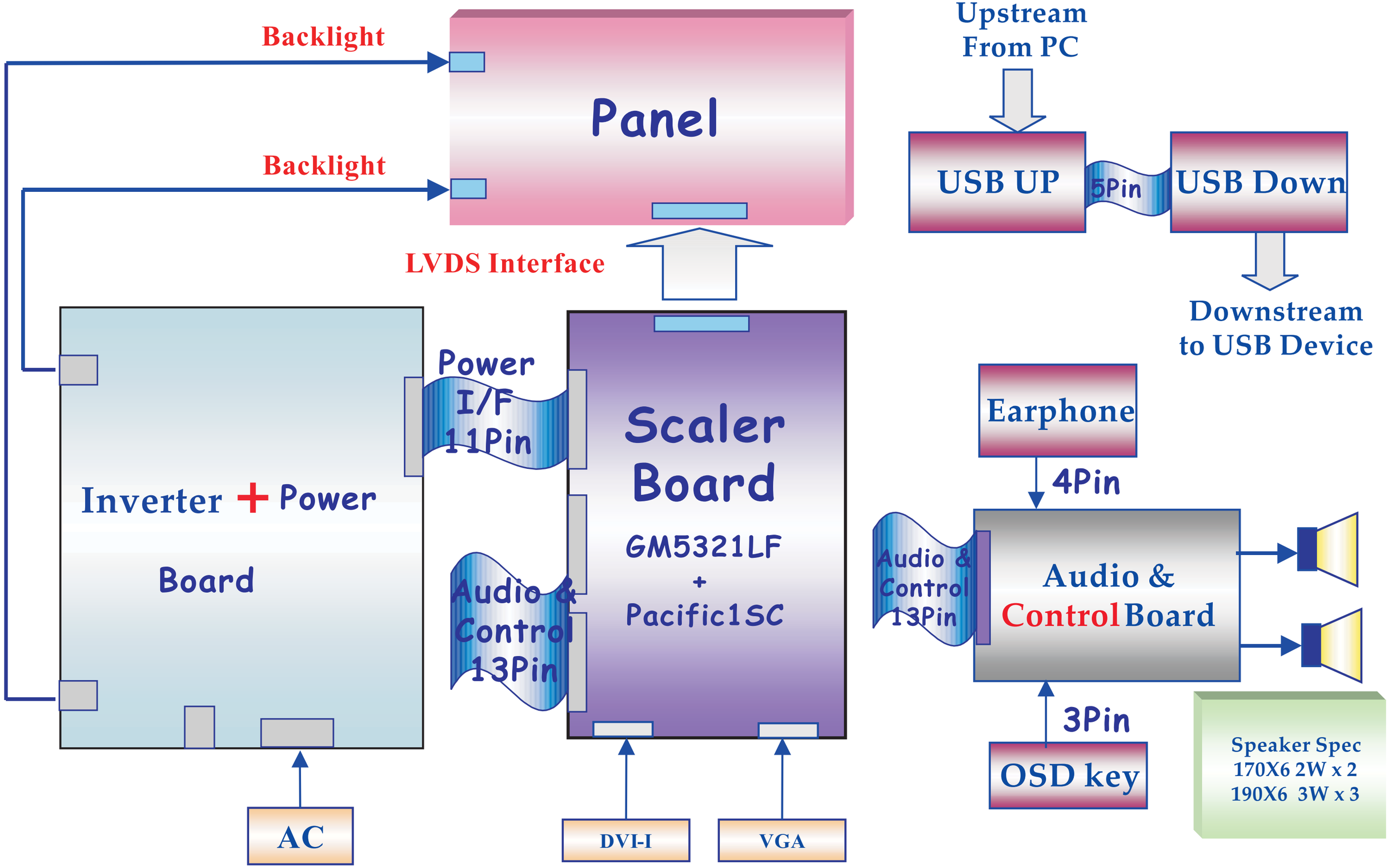
Wiring Diagram(170X6)



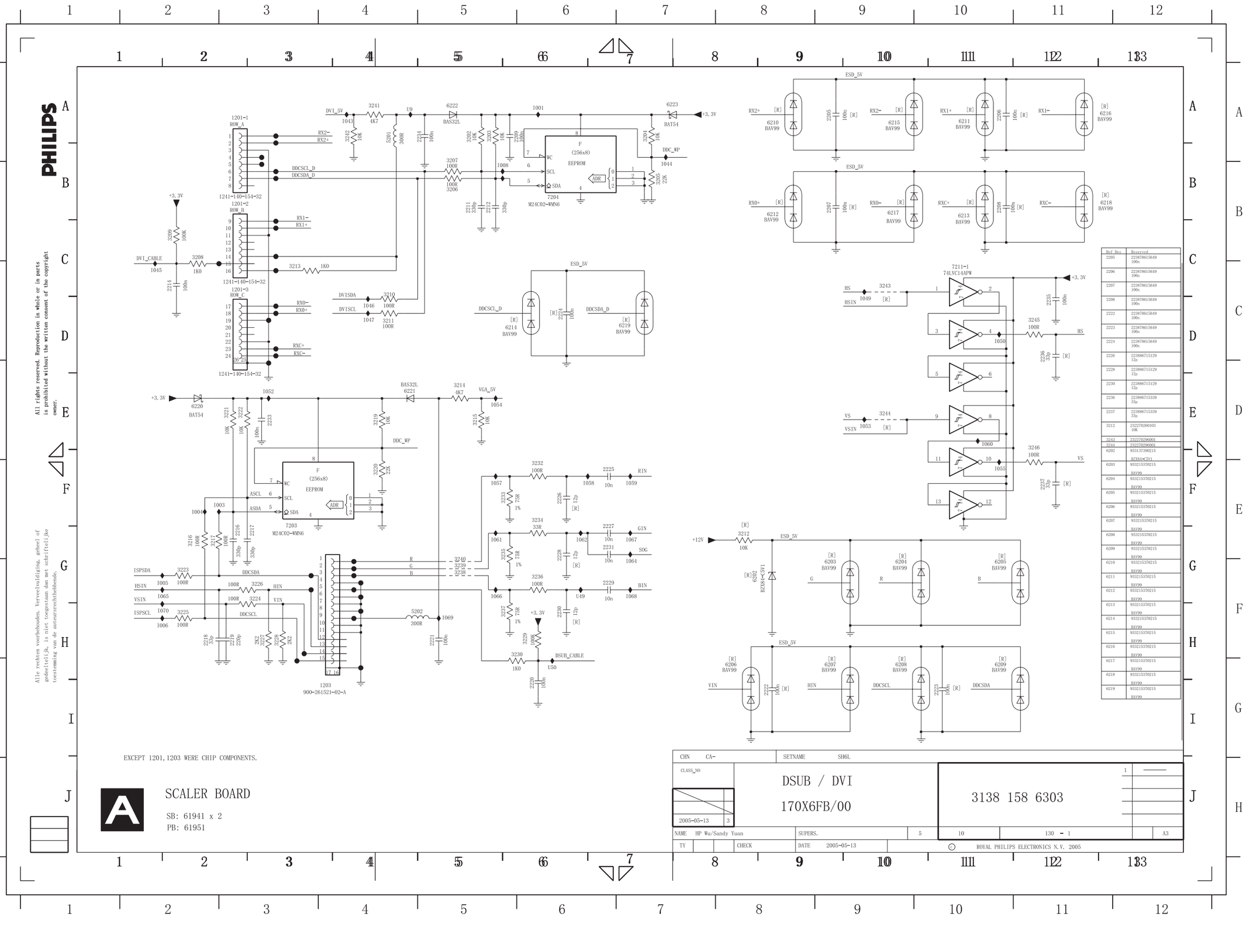
Wiring Diagram(190X6)



Block Diagram



Scaler Diagram



Ref Des	Reserved
2205	2238786615649 100n
2206	2238786615649 100n
2207	2238786615649 100n
2208	2238786615649 100n
2222	2238786615649 100n
2223	2238786615649 100n
2224	2238786615649 100n
2226	2238886715129 12p
2228	2238886715129 12p
2230	2238886715129 12p
2236	2238886715339 33p
2237	2238886715339 33p
3212	2322702060103 10K
3243	2322702960001
3244	2322702960001
6202	9331373902151 RZX84-C5V1
6203	9332153702151 BAV99
6204	9332153702151 BAV99
6205	9332153702151 BAV99
6206	9332153702151 BAV99
6207	9332153702151 BAV99
6208	9332153702151 BAV99
6209	9332153702151 BAV99
6210	9332153702151 BAV99
6211	9332153702151 BAV99
6212	9332153702151 BAV99
6213	9332153702151 BAV99
6214	9332153702151 BAV99
6215	9332153702151 BAV99
6216	9332153702151 BAV99
6217	9332153702151 BAV99
6218	9332153702151 BAV99
6219	9332153702151 BAV99

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SCALER BOARD

SB: 61941 x 2

PB: 61951

CHN CA-	SETNAME SH6L		
CLASS_NO	DSUB / DVI 170X6FB/00	3138 158 6303	
2005-05-13 3			
NAME HP Wu/Sandy Yuan	SUPERS. 5	10	130 - 1 A3
TY CHECK	DATE 2005-05-13	ROYAL PHILIPS ELECTRONICS N.V. 2005	

U9 A4
U49 F6
U50 G6
1201-1 A3
1201-2 B3
1201-3 C3
1203 G4
2205 A9
2206 A10
2207 B9
2208 B10
2209 A6
2211 B5
2212 B5
2214 C2
2216 E3
2217 E3
2218 F2
2219 F3
2220 G6
2221 F5
2222 G8
2223 G10
2224 C6
2225 E6
2226 E6
2227 E6
2228 E6
2229 F6
2230 F6
2231 E6
2233 D3
2234 A5
2235 C11
2236 C11
2237 E11
3202 A5
3203 A5
3204 A7
3205 B7
3206 B5
3207 B5
3208 B2
3209 B2
3210 C4
3211 C4
3212 E8
3213 C3
3214 D5
3215 D5
3216 E2
3217 E2
3219 D4
3220 E4
3221 D3
3222 D3
3223 F2
3224 F3
3225 F2
3226 F3
3227 F3
3228 F3
3229 F6
3230 F6
3232 E6
3233 E5
3234 E6
3235 E5
3236 F6
3237 F5
3238 F5
3239 F5
3240 F5
3241 A4
3242 A4
3243 C9
3244 D9
3245 C11
3246 D11
5201 A4
5202 F5
6202 F8
6203 F9
6204 F9
6205 F10
6206 G8
6207 G9
6208 G9
6209 G10
6210 A8
6211 A10
6212 B8
6213 B10
6214 C5
6215 A9
6216 A11
6217 B9
6218 B11
6219 C7
6220 D2
6221 D4
6222 A5
6223 A3
7204 B6
7211-1 C10
1001 A6
1003 E3
1004 E2
1005 F2
1006 F2
1008 B5
1043 A4
1044 B7
1045 C2
1046 C4
1047 C4
1049 C9
1050 C10
1052 D9
1053 D9
1054 D9
1055 E6
1057 E6
1058 E6
1059 E7
1060 D10
1061 E5
1062 E6
1064 F7
1065 F2
1066 F5
1067 E7
1068 F7
1069 F5
1070 F2
0

Scaler Diagram

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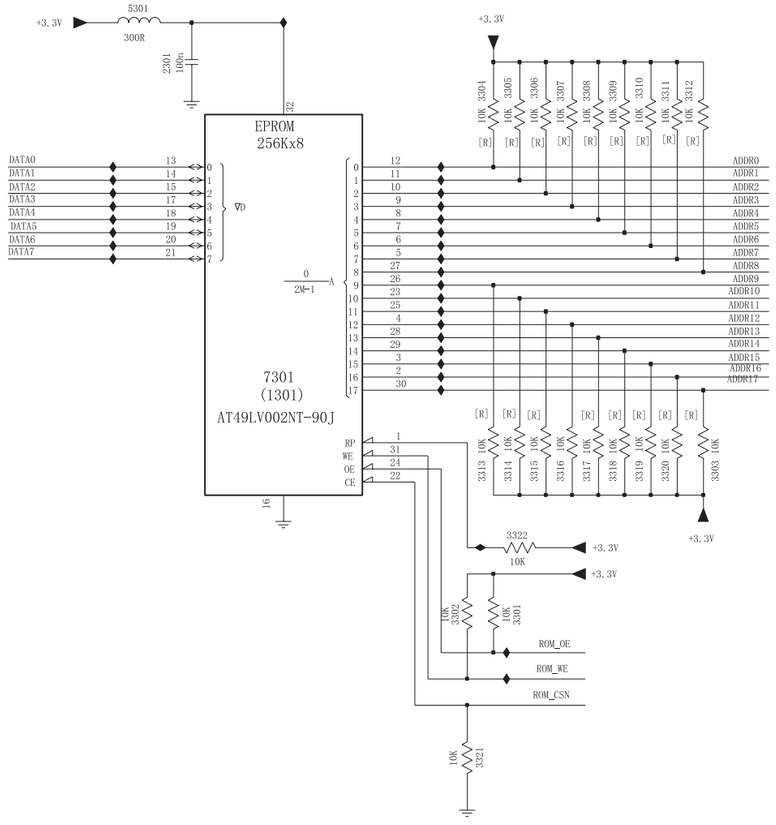
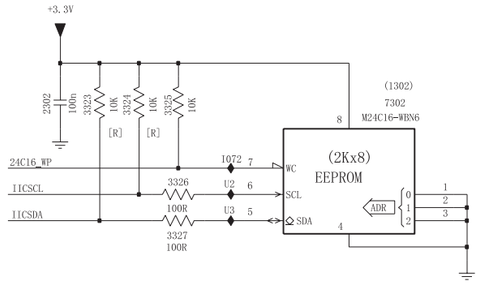
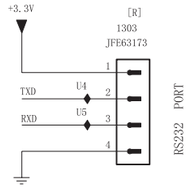
SCALER BOARD

SB: 61941 x 2
PB: 61951







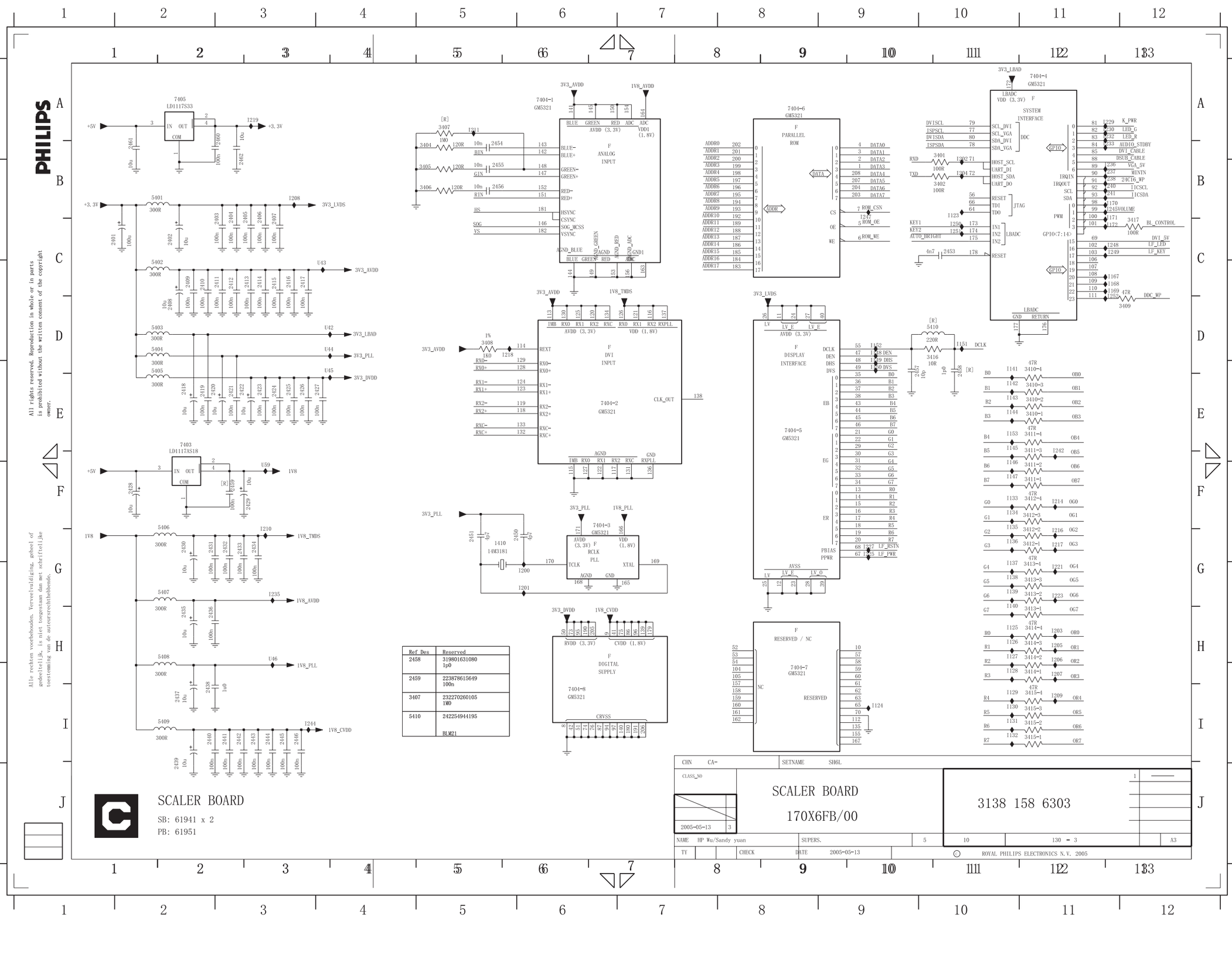
Ref. Des	Reserved
1303	313816876941 JFE63173
3303	232270260103 10K
3304	232270260103 10K
3305	232270260103 10K
3306	232270260103 10K
3307	232270260103 10K
3308	232270260103 10K
3309	232270260103 10K
3310	232270260103 10K
3311	232270260103 10K
3312	232270260103 10K
3313	232270260103 10K
3314	232270260103 10K
3315	232270260103 10K
3317	232270260103 10K
3318	232270260103 10K
3319	232270260103 10K
3320	232270260103 10K
3323	232270260103 10K
3324	232270260103 10K

U2 B8
U3 C8
U4 D8
U5 E8
1303 D8
2301 B3
2302 B7
3301 E5
3302 E4
3303 E6
3304 B5
3305 B5
3306 B5
3307 B5
3308 B5
3309 B5
3310 B5
3311 B6
3312 B6
3313 E5
3314 E5
3315 E5
3316 E5
3317 E5
3318 E5
3319 E5
3320 E6
3321 F5
3322 E5
3323 B7
3324 B7
3325 B8
3326 B8
3327 C8
5301 B3
7301 D3
7302 B9
1072 B8

EXCEPT 1303, 7302 WERE CHIP COMPONENTS.

CHN CA-		SETNAME SHGL	
CLASS_NO	ROM 170X6FB/00	3138 158 6303	1 -------
2005-05-13 3			
NAME HP Wu/Sandy Yuan	SUPERS.	5	10 130 - 2 A3
TY CHECK	DATE 2005-05-13	© ROYAL PHILIPS ELECTRONICS N.V. 2005	

Scaler Diagram



Ref Des	Reserved
2458	3198016310801p0
2459	223878615649100n
3407	2322702601051M0
5410	242254944195BLM21

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U42 C4
U43 C4
U44 C4
U45 D4
U46 F3
U59 E3
1410 E5
2401 B1
2402 B2
2403 B2
2404 B3
2405 B3
2406 B3
2407 B3
2408 C2
2409 C2
2410 C2
2411 C2
2412 C3
2413 C3
2414 C3
2418 D3
2416 C3
2417 C3
2419 D2
2420 D2
2421 D3
2422 D3
2423 D3
2424 D3
2425 D3
2426 D3
2427 D3
2428 E2
2429 E3
2430 E2
2431 E2
2432 E3
2433 E3
2434 E3
2435 F2
2436 F2
2437 G2
2438 G2
2439 H2
2440 G2
2441 G3
2442 G3
2443 G3
2444 G3
2445 G3
2446 G3
2450 E5
2451 E5
2453 B10
2454 A5
2455 B5
2456 B5
2457 D9
2458 D10
2459 E3
2460 A3
2461 A2
2462 A3
3401 A10
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3406 B5
3407 A5
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3410-2 D11
3410-3 D11
3410-4 D11
3411-3 B11
3412-1 E11
3412-2 E11
3412-3 E11
3412-4 E11
3413-1 F11
3413-2 F11
3413-3 F11
3413-4 F11
3414-1 G11
3414-2 F11
3414-3 F11
3414-4 F11
3415-1 G11
3415-2 G11
3415-3 G11
3415-4 G11
3416 C10
3417 B12
5401 B2
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5403 C2
5404 C2
5405 D2
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7403 D2
7404-1 A6
7404-2 C6
7404-3 E6
7404-4 A10
7404-5 C8
7404-6 A8
7404-7 F8
7404-8 F6
1201 F6
1202 A10
1203 F11
1204 B10
1205 F11
1206 F11
1207 G11
1208 B3
1209 G11
1210 E3
1211 A5
1214 E11
1216 E11
1217 E11
1219 A3
1221 F11
1223 F11
1227 E9
1229 A11
1230 A11
1232 A11
1233 A11
1235 F3
1236 B11
1237 B11
1238 B11
1240 B11
1241 B11
1242 B11
1244 G3
1245 B11
1247 B9
1248 B11
1249 B11
1250 B10
1251 B10
1252 C11

Scaler Diagram

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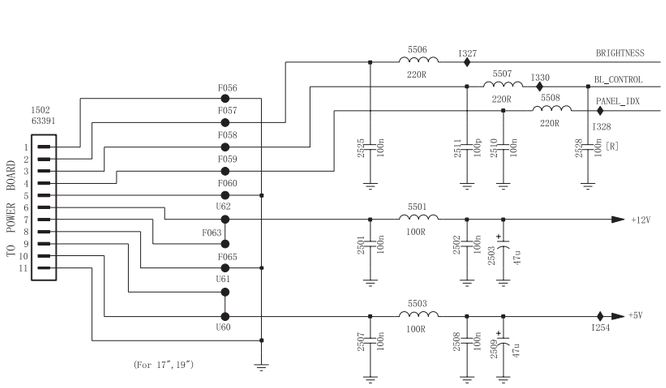
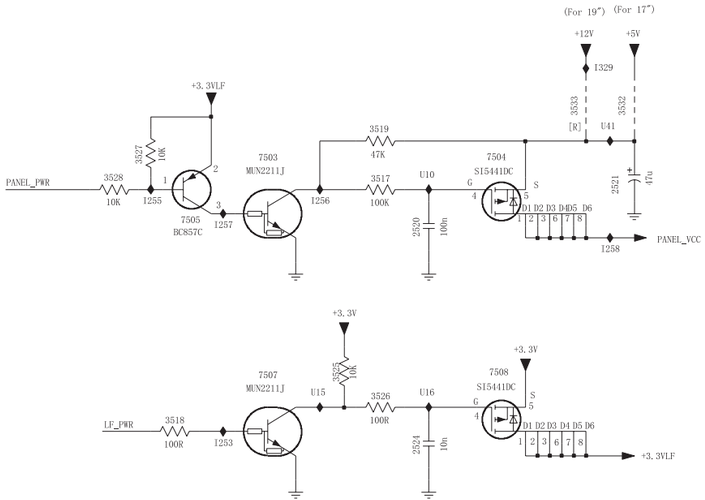
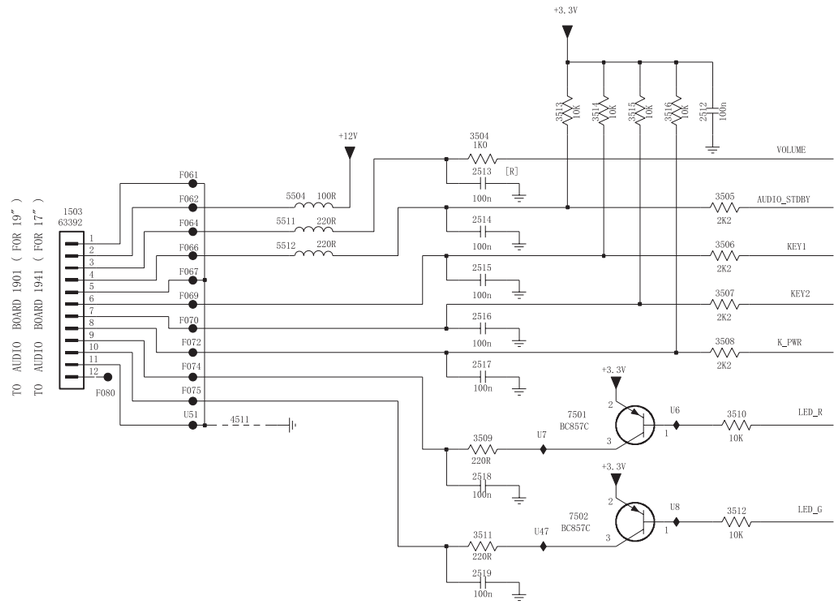
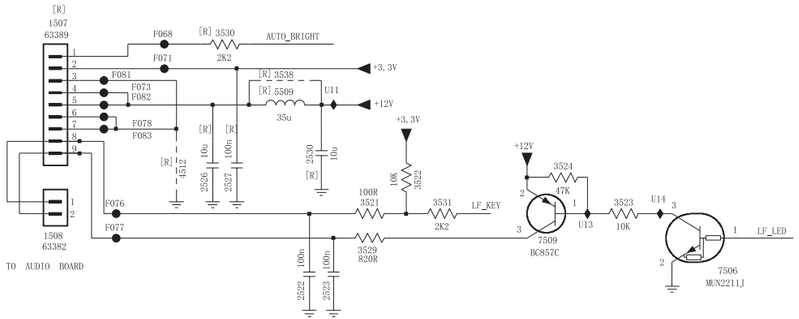






Ref Des	Reserved
1507	242202518822 63389
2513	223878615649 100n
2526	222224119876 10u
2527	223878615649 100n
2528	223878615649 100n
2530	222224119876 10u
3330	232270260222 2K2
3533	232270296001
3538	232270296001
4512	213811291002
5509	313818875771 35u



EXCEPT 1502, 1503, 1507, 1508 WERE CHIP COMPONENTS.

SCALER BOARD

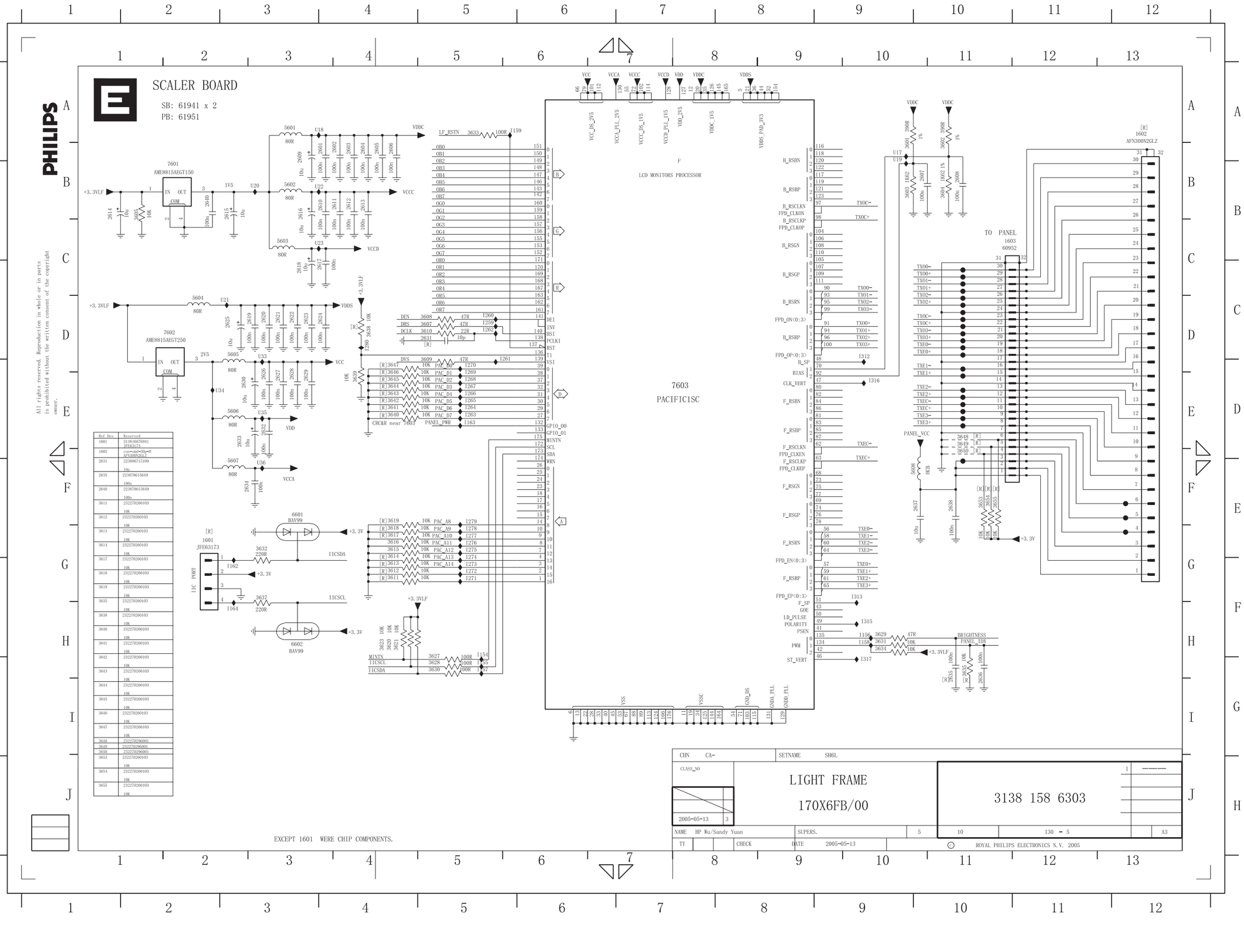
SB: 61941 x 2

PB: 61951

CHN CA-		SETNAME SH6L	
CLASS_NO	POWER 170X6FB/00	3138 158 6303	1
2005-05-13 3			
NAME HP Wu/Sandy Yuan	SUPERS.	5 10 130 - 4	A3
TY CHECK	DATE 2005-05-13	© ROYAL PHILIPS ELECTRONICS N.V. 2005	

U6 D10
U7 D9
U8 D10
U10 E4
U11 E8
U13 F10
U14 F10
U15 F3
U16 F4
U41 E5
U47 D9
U51 D7
U60 C3
U61 C3
U62 B3
1502 B1
1503 B6
1507 E7
1508 F7
2501 C3
2502 C4
2503 C4
2507 C3
2508 C4
2509 C4
2510 B4
2511 B4
2512 B10
2513 B9
2514 B9
2515 C9
2516 C9
2517 C9
2518 D9
2519 D9
2520 E4
2521 E5
2522 G8
2523 G8
2524 G4
2525 B3
2526 F8
2527 F8
2528 B5
2530 F8
3504 B9
3505 B10
3506 C10
3507 C10
3508 C10
3509 D9
3510 D10
3511 D9
3512 D10
3513 B9
3514 B9
3515 B9
3516 B10
3517 E4
3518 G2
3519 E4
3521 F9
3522 F9
3523 F10
3524 F10
3525 F3
3526 F4
3527 E2
3528 E2
3529 F9
3530 E8
3531 F9
3532 E5
3533 E5
3538 E8
4511 D7
4512 F7
5501 B4
5503 C4
5504 B7
5506 A4
5507 B4
5508 B5
5509 E8
5511 B7
5512 C7
7501 D9
7502 D9
7503 E3
7504 E4
7505 E2
7506 F11
7507 F3
7508 F4
7509 F10
F056 B3
F057 B3
F058 B3
F059 B3
F060 B3
F061 B7
F062 B7
F063 B3
F064 B7
F065 C3
F066 C7
F067 C7
F068 E7
F069 C7
F070 C7
F071 E7
F072 C7
F073 E7
F074 C7
F075 C 7
F076 F 7
F077 F 7
F078 F 7
F080 C 6
F081 E 7
F082 E 7
F083 F 7
1253 G3
1254 C5
1255 E2
1256 E3
1257 E3
1258 F5
1327 A4
1328 B5
1329 E5
1330 B4

Scaler Diagram



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1601	313816576941 JFE63173
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2631	223886715109 10u
2635	223878615649 100n
2640	223878615649 100n
3611	232270260103 10K
3612	232270260103 10K
3613	232270260103 10K
3614	232270260103 10K
3617	232270260103 10K
3618	232270260103 10K
3619	232270260103 10K
3635	232270260103 10K
3638	232270260103 10K
3640	232270260103 10K
3641	232270260103 10K
3642	232270260103 10K
3643	232270260103 10K
3644	232270260103 10K
3645	232270260103 10K
3646	232270260103 10K
3647	232270260103 10K
3648	232270296001
3649	232270296001
3650	232270296001
3653	232270260103 10K
3654	232270260103 10K
3655	232270260103 10K

CHN	CA-	SETNAME	SH6L
CLASS_NO			
2005-05-13	3		
NAME	HP Wu/Sandy Yuan	SUPERS.	5
TY		CHECK	DATE 2005-05-13

10 | 130 - 5 | A3

ROYAL PHILIPS ELECTRONICS N.V. 2005

U17 A9
U18 A4
U19 A9
U20 B3
U21 C3
U22 B4
U23 B4
U33 C3
U34 D3
U35 D3
U36 E3
1601 E2
1602 A12
1603 B10
2601 A3
2602 A4
2603 A4
2604 A4
2605 A4
2606 A4
2607 B10
2608 B10
2609 A3
2610 B3
2611 B4
2612 B4
2613 B4
2614 B1
2615 B3
2616 B3
2617 C3
2618 C3
2619 C3
2620 C3
2621 C3
2622 C3
2623 C3
2624 C3
2625 C3
2626 D3
2627 D3
2628 D3
2629 D3
2630 D3
2631 C5
2632 D3
2633 D3
2634 E3
2635 G10
2636 G10
2637 E10
2638 E10
2640 B2
3601 A9
3602 A10
3603 B9
3604 B10
3605 B2
3607 C5
3608 C5
3609 D5
3610 C5
3611 F4
3612 F4
3613 F4
3614 E4
3615 E4
3616 E4
3617 E4
3618 E4
3619 E4
3620 F4
3621 F4
3623 F4
3627 G5
3628 G5
3629 F9
3630 G5
3631 F9
3632 E3
3633 A5
3634 F9
3635 G10
3637 F3
3638 C4
3639 D4
3640 D4
3641 D4
3642 D4
3643 D4
3644 D4
3645 D4
3646 D4
3647 D4
3648 D10
3649 D10
3650 D10
3653 E10
3654 E10
3655 E10
5601 A3
5602 B3
5603 B3
5604 C2
5605 C3
5606 D3
5607 E3
5608 E1 0
5602 B2
I154 F5
I155 G5
I156 F9
I157 G5
I158 F9
I159 A5
I162 F3
I163 D5
I164 F3
I259 C5
I260 C5
I261 C5
I262 C5
I263 D5
I264 D5
I265 D5
I266 D5
I267 D5
I268 D5
I269 D5
I270 D5
I271 F5
I272 F5
I273 F5
I274 E5
I275 E5
I276 E5
I277 E5
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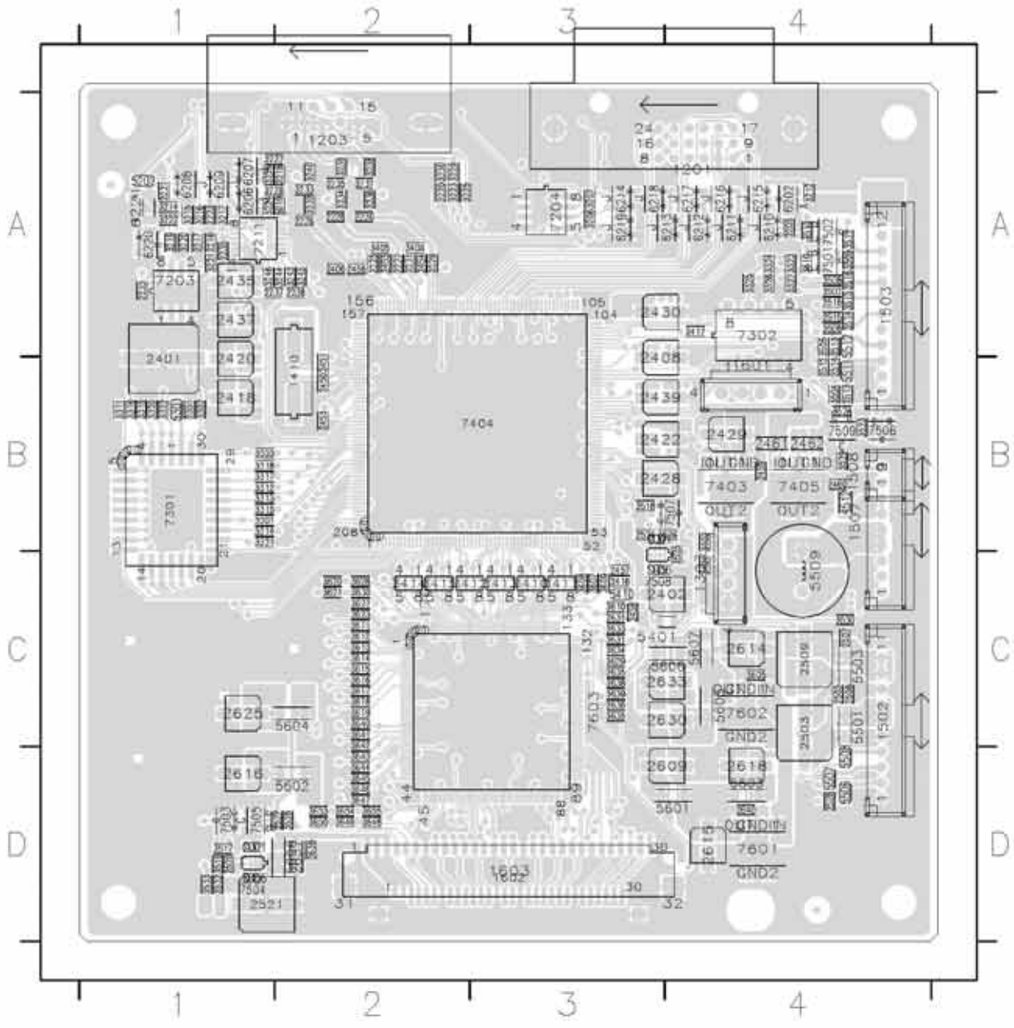
I317 G9

Scaler Board C.B.A



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1203	A2	2614	C4	3406	A2	3647	D2
1303	C4	2615	D4	3410	C3	3648	D2
1410	B2	2616	D1	3411	C3	3649	D2
1502	C4	2618	D4	3412	C3	3650	D2
1503	A4	2625	C1	3413	C3	3653	D2
1507	B4	2630	C4	3414	C2	3654	D2
1508	B4	2631	C3	3415	C2	3655	D2
1601	B4	2633	C4	3416	C3	4512	B4
1602	D3	2635	C3	3417	A4	5203	A1
1603	D3	2636	C3	3504	B4	5301	B1
2205	A4	2637	D2	3505	A4	5401	C3
2216	A1	2638	D2	3506	A4	5410	C3
2217	A1	2640	D4	3507	A4	5501	C4
2218	A2	3206	A3	3508	A4	5503	C4
2219	A2	3207	A3	3509	A4	5506	D4
2220	A2	3212	A4	3510	A4	5507	D4
2221	A1	3214	A1	3511	A4	5508	D4
2223	A1	3215	A1	3512	A4	5509	C4
2225	A2	3216	A1	3513	A4	5511	B4
2226	A2	3217	A1	3514	A4	5512	A4
2227	A2	3219	A1	3515	A4	5601	D4
2228	A2	3220	A1	3516	A4	5602	D2
2229	A2	3221	A1	3517	D1	5603	D4
2230	A2	3222	A1	3518	B3	5604	C2
2231	A2	3223	A2	3519	D1	5605	C4
2233	A1	3224	A1	3523	B4	5606	C4
2235	A1	3225	A2	3524	B4	5607	C4
2236	A2	3226	A1	3525	B4	6202	A4
2237	A1	3227	A1	3526	B4	6206	A1
2238	A1	3228	A1	3527	D2	6207	A1
2301	B1	3229	A2	3528	D2	6208	A1
2401	B1	3230	A2	3529	B4	6209	A1
2402	C4	3231	A2	3530	C4	6210	A4
2408	B3	3232	A2	3531	D1	6211	A4
2418	B1	3233	A2	3532	D1	6212	A4
2420	B1	3234	A2	3533	D1	6213	A4
2422	B3	3235	A2	3534	C4	6214	A4
2428	B3	3236	A2	3535	C4	6215	A4
2430	A3	3237	A2	3536	C4	6216	A4
2431	A1	3238	A2	3537	C4	6217	A4
2432	B3	3239	A2	3538	A5	6218	A4
2433	B3	3240	A2	3539	A5	6219	A4
2434	B3	3241	A2	3540	A5	6220	A1
2435	B3	3244	A5	3541	A5	6221	A1
2436	A3	3245	A5	3542	A5	7203	A1
2437	A3	3246	A5	3543	A5	7204	A3
2438	A3	3501	B1	3544	A5	7211	A1
2439	A3	3502	B1	3545	A5	7301	B1
2440	A3	3503	B1	3546	A5	7302	B4
2441	A3	3511	B1	3547	A5	7403	B4
2442	A3	3512	B1	3548	A5	7404	B3
2443	A3	3513	B1	3549	A5	7405	B4
2444	B4	3514	B1	3550	A5	7501	A4
2445	B4	3515	B1	3551	A5	7502	A4
2446	B4	3516	B1	3552	A5	7503	D1
2447	B4	3517	B1	3553	A4	7504	C1
2448	B4	3518	B1	3554	A4	7505	C1
2449	B4	3519	B1	3555	A4	7506	B4
2450	B4	3520	B1	3556	A4	7507	B4
2451	B4	3521	B1	3557	A4	7508	B4
2452	B4	3522	B1	3558	A4	7509	B4
2453	B4	3523	B1	3559	A4	7601	D4
2454	B4	3524	B1	3560	A4	7602	C4
2455	C4	3525	B1	3561	C4	7603	C3
2456	C4	3526	B1	3562	C4		
2457	C4	3527	B1	3563	C4		
2458	C4	3528	B1	3564	C4		
2459	C4	3529	B1	3565	C4		
2460	C4	3530	B1	3566	C4		
2461	C4	3531	B1	3567	C4		
2462	C4	3532	B1	3568	C4		
2463	C4	3533	B1	3569	C4		
2464	C4	3534	B1	3570	C4		
2465	C4	3535	B1	3571	C4		
2466	C4	3536	B1	3572	C4		
2467	C4	3537	B1	3573	C4		
2468	C4	3538	B1	3574	C4		
2469	C4	3539	B1	3575	C4		
2470	C4	3540	B1	3576	C4		
2471	C4	3541	B1	3577	C4		
2472	C4	3542	B1	3578	C4		
2473	C4	3543	B1	3579	C4		
2474	C4	3544	B1	3580	C4		
2475	C4	3545	B1	3581	C4		
2476	C4	3546	B1	3582	C4		
2477	C4	3547	B1	3583	C4		
2478	C4	3548	B1	3584	C4		
2479	C4	3549	B1	3585	C4		
2480	C4	3550	B1	3586	C4		
2481	C4	3551	B1	3587	C4		
2482	C4	3552	B1	3588	C4		
2483	C4	3553	B1	3589	C4		
2484	C4	3554	B1	3590	C4		
2485	C4	3555	B1	3591	C4		
2486	C4	3556	B1	3592	C4		
2487	C4	3557	B1	3593	C4		
2488	C4	3558	B1	3594	C4		
2489	C4	3559	B1	3595	C4		
2490	C4	3560	B1	3596	C4		
2491	C4	3561	B1	3597	C4		
2492	C4	3562	B1	3598	C4		
2493	C4	3563	B1	3599	C4		
2494	C4	3564	B1	3600	C4		
2495	C4	3565	B1	3601	C4		
2496	C4	3566	B1	3602	C4		
2497	C4	3567	B1	3603	C4		
2498	C4	3568	B1	3604	C4		
2499	C4	3569	B1	3605	C4		
2500	C4	3570	B1	3606	C4		
2501	C4	3571	B1	3607	C4		
2502	C4	3572	B1	3608	C4		
2503	C4	3573	B1	3609	C4		
2504	C4	3574	B1	3610	C4		
2505	C4	3575	B1	3611	C4		
2506	C4	3576	B1	3612	C4		
2507	C4	3577	B1	3613	C4		
2508	C4	3578	B1	3614	C4		
2509	C4	3579	B1	3615	C4		
2510	C4	3580	B1	3616	C4		
2511	C4	3581	B1	3617	C4		
2512	C4	3582	B1	3618	C4		
2513	C4	3583	B1	3619	C4		
2514	C4	3584	B1	3620	C4		
2515	C4	3585	B1	3621	C4		
2516	C4	3586	B1	3622	C4		
2517	C4	3587	B1	3623	C4		
2518	C4	3588	B1	3624	C4		
2519	C4	3589	B1	3625	C4		
2520	C4	3590	B1	3626	C4		
2521	D1	3591	B1	3627	C4		
2524	B3	3592	B1	3628	C4		
2528	D4	3593	B1	3629	C4		
		3594	B1	3630	C4		
		3595	B1	3631	C4		
		3596	B1	3632	C4		
		3597	B1	3633	C4		
		3598	B1	3634	C4		
		3599	B1	3635	C4		
		3600	B1	3636	C4		
		3601	C4	3637	D2		
		3602	B4	3638	D2		
		3603	B4	3639	D2		
		3604	A2	3640	D4		
		3644	D2	3645	D2		

CN: CA-		LCD SH6	
CLASS NO 3XX000	Scaler Board SH6 170P6/190P6	3138 103 6194	I 2005-02-04
2005-02-04			
NAME Thomas Chen/Sandy	SUPERS	2 10 132 - 1	A3
CHECK	DATE 2005-02-04	© Philips Electronics N.V.	

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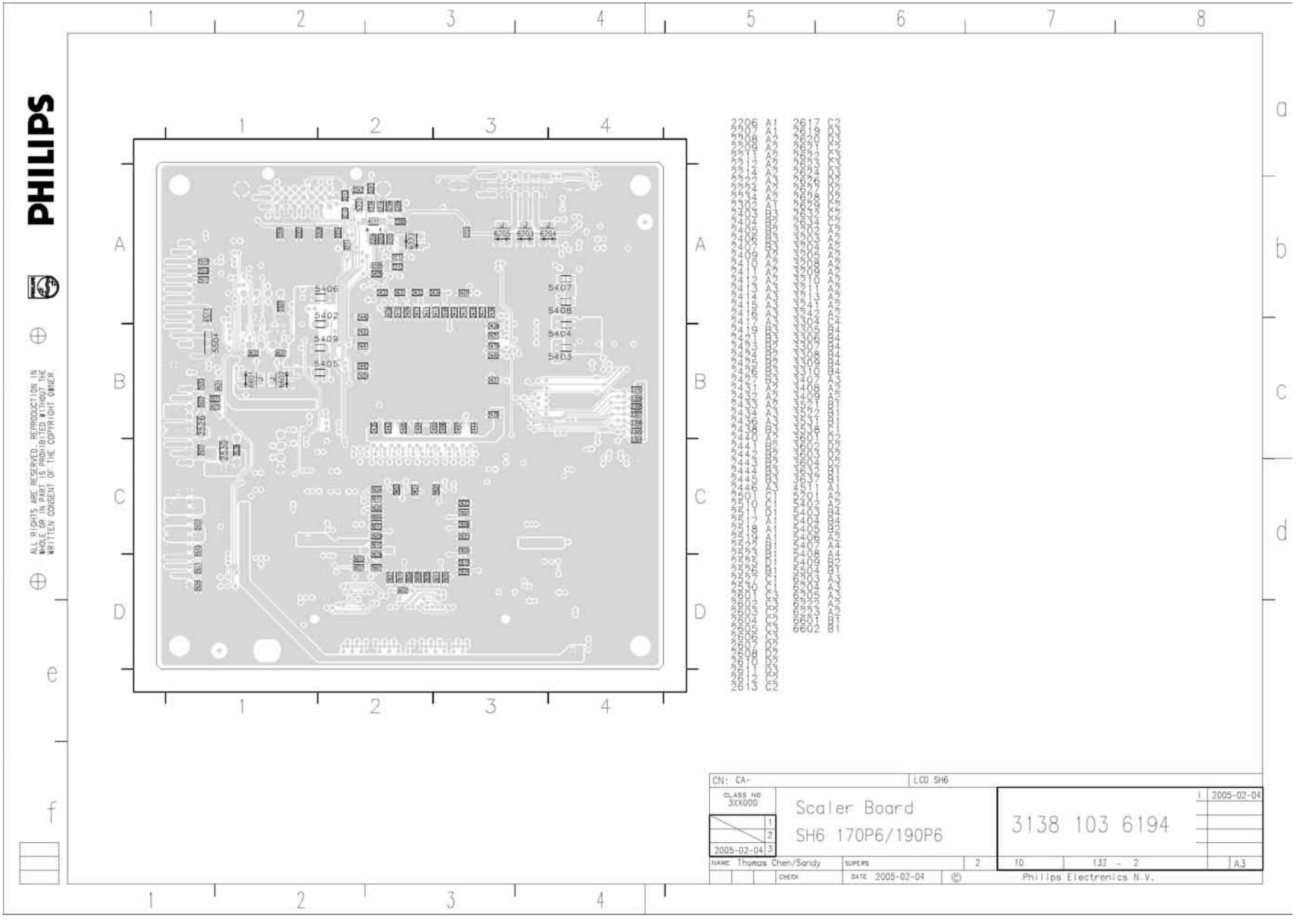
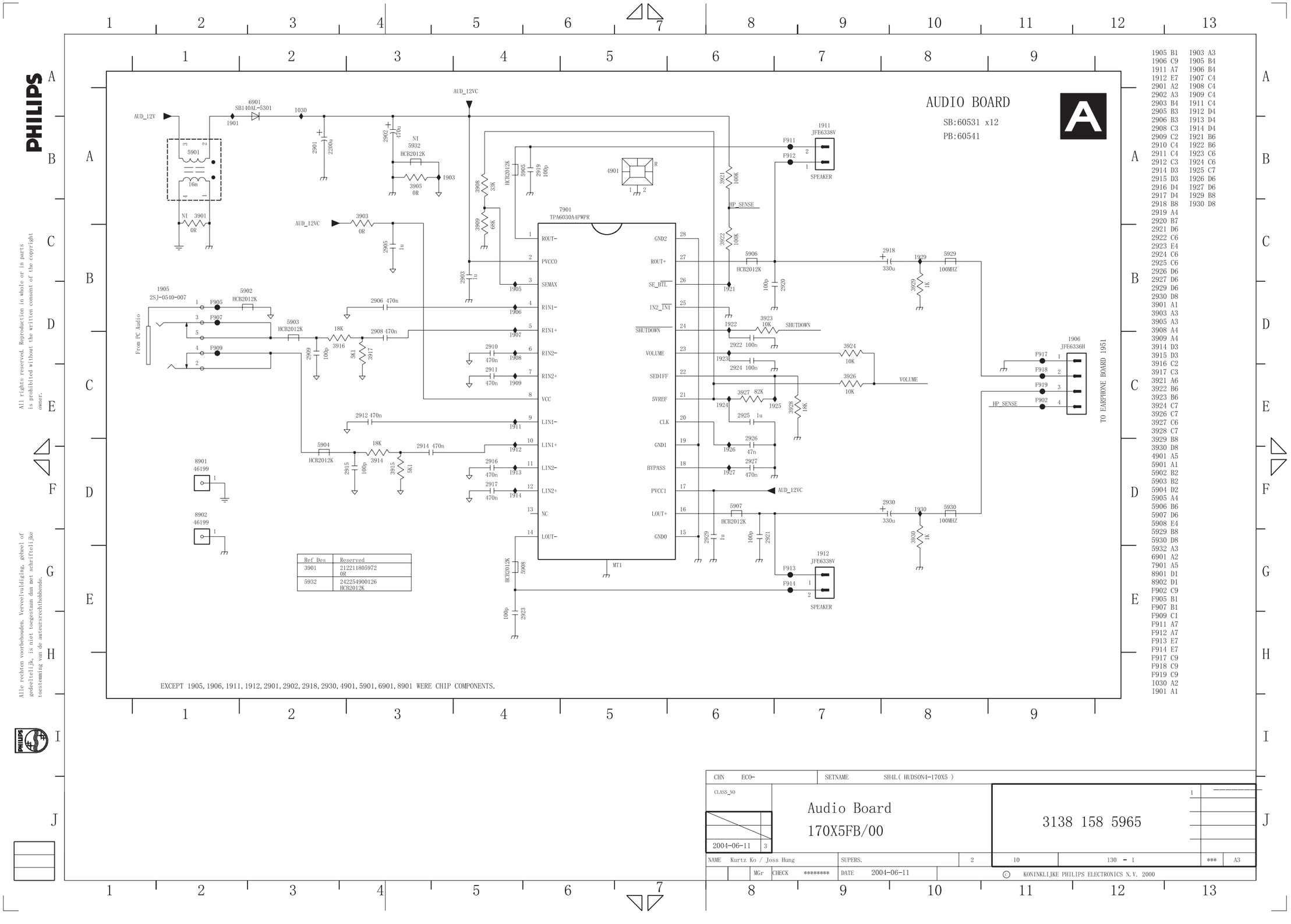
Scaler Board C.B.A



AUDIO DIAGRAM(170X6)



Ref Des	Reserved
3901	212211805972 0R
5932	242254900126 HCB2012K

EXCEPT 1905, 1906, 1911, 1912, 2901, 2902, 2918, 2930, 4901, 5901, 6901, 8901 WERE CHIP COMPONENTS.

1905 B1 I903 A3
1906 C9 1905 B4
1911 A7 1906 B4
1912 E7 1907 C4
2901 A2 1908 C4
2902 A3 1909 C4
2903 B4 1911 C4
2905 B3 1912 D4
2906 B3 1913 D4
2908 C3 1914 D4
2909 C2 1921 B6
2910 C4 1922 B6
2911 C4 1923 C6
2912 C3 1924 C6
2914 D3 1925 C7
2915 D3 1926 D6
2916 D4 1927 D6
2917 D4 1929 B8
2918 B8 1930 D8
2919 A4
2920 B7
2921 D6
2922 C6
2923 E4
2924 C6
2925 C6
2926 D6
2927 D6
2929 D6
2930 D8
3901 A1
3903 A3
3905 A3
3908 A4
3909 A4
3914 D3
3915 D3
3916 C2
3917 C3
3921 A6
3922 B6
3923 B6
3924 C7
3926 C7
3927 C6
3928 C7
3929 B8
3930 D8
4901 A5
5901 A1
5902 B2
5903 B2
5904 D2
5905 A4
5906 B6
5907 D6
5908 E4
5929 B8
5930 D8
5932 A3
6901 A2
7901 A5
8901 D1
8902 D1
F902 C9
F905 B1
F907 B1
F909 C1
F911 A7
F912 A7
F913 E7
F914 E7
F917 C9
F918 C9
F919 C9
I030 A2
I901 A1

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CHN ECO-	SETNAME SH4L (HUDSON4-170X5)		
CLASS_NO	Audio Board 170X5FB/00	3138 158 5965	1
2004-06-11 3			
NAME Kurtz Ko / Joss Hung	SUPERS.	2 10 130 - 1	*** A3
MGr CHECK *******	DATE 2004-06-11	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2000	

AUDIO DIAGRAM(170X6)

Go to cover page

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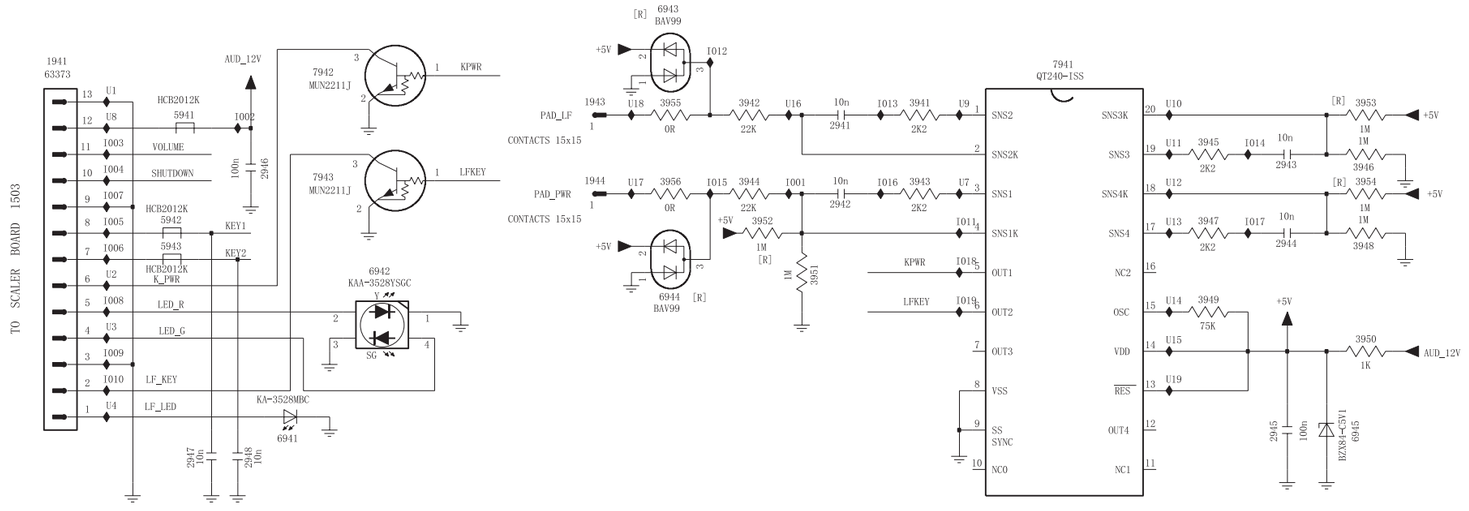
AUDIO BOARD

SB:60533 x12

PB:60543

B



Ref Des	Reserved
3952	232270260105 1M
3953	232270260105 1M
3954	232270260105 1M
6943	933215370235 BAV99
6944	933215370235 BAV99

EXCEPT 1941,1942 WERE CHIP COMPONENTS.

U1 B2
U2 C2
U3 C2
U4 D2
U5 E2
U6 E2
U7 C6
U8 B2
U9 B6
U10 B7
U11 B7
U12 C7
U13 C7
U14 C7
U15 C7
U16 B5
U17 C5
U18 B5
U19 D7
1941 B1
1942 E1
1943 B4
1944 C4
2941 B6
2942 C6
2943 B8
2944 C8
2945 D8
2946 B2
2947 D2
2948 D2
3941 B6
3942 B5
3943 C6
3944 C5
3945 B8
3946 B8
3947 C8
3948 C8
3949 C8
3950 C9
3951 C5
3952 C5
3953 B9
3954 C9
3955 B5
3956 C5
5941 B2
5942 C2
5943 C2
6941 D3
6942 C3
6943 B5
6944 C5
6945 D8
7941 B7
7942 B3
7943 C3
I001 C5
I002 B2
I003 B2
I004 B2
I005 C2
I006 C2
I007 C2
I008 C2
I009 C2
I010 D2
I011 C6

CHN ECO-002289	SETNAME SH4L (HUDSON4-170X5)		
CLASS_NO	PWR/LF KEY PAD 170X5FB/00	3138 158 5965	1 ~~2004-10-14~~ 1 2004-11-29
2004-06-11 3			
NAME H P Wu / Joss Hung	SUPERS.	2	130 - 2 A3
CHECK	DATE 2004-06-11	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2004	

Audio Board C.B.A(170X6)

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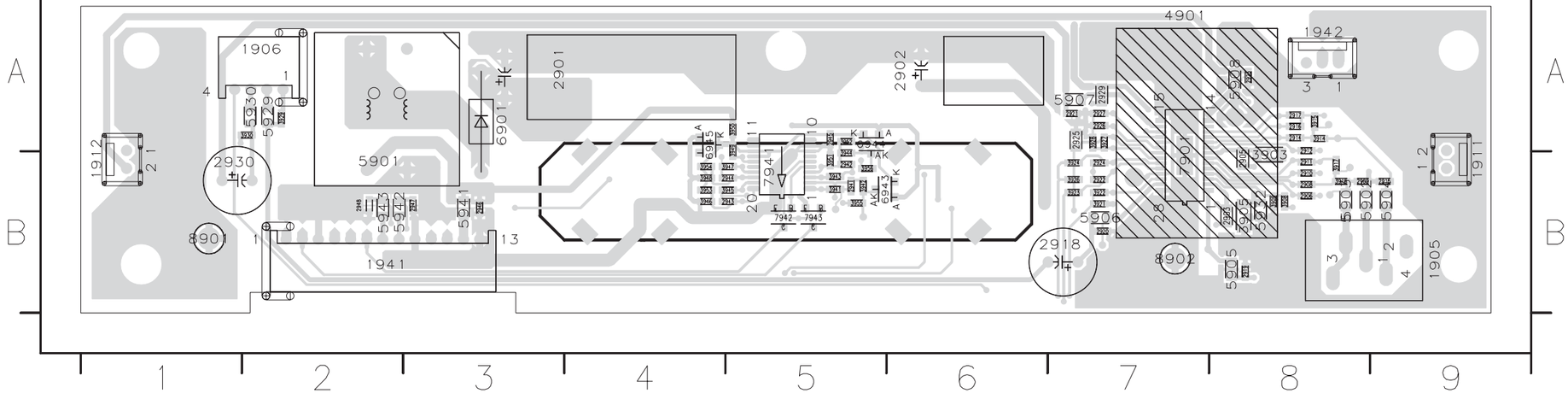
PHILIPS

1905 B9 1906 A2 1911 B9 1912 B1 1941 B2 1942 A8 2901 A3
2902 A6 2903 B8 2905 B8 2906 B8 2908 B8 2909 B8 2910 B8
2911 B8 2912 A8 2914 A8 2915 B9 2916 A8 2917 A8 2918 B7
2919 B8 2920 B7 2921 A7 2922 B7 2923 A8 2924 B7 2925 A7
2926 A7 2927 A7 2929 A7 2930 B1 2941 B5 2942 B5 2943 B5
2944 B5 2945 A5 2946 B3 2947 B3 2948 B2 3903 B8 3905 B8
3908 B8 3909 B8 3914 A8 3915 A8 3916 B8 3917 B8 3921 B7
3922 B7 3923 B7 3924 B7 3926 B7 3927 A7 3928 A7 3929 A2
3930 A2 3941 B5 3942 B5 3943 B5 3944 B5 3945 B5 3946 B4
3947 B5 3948 B4 3949 A5 3950 A5 3951 B5 3952 A5 3953 B4
3954 B4 3955 B5 3956 B5 4901 A7 5901 B2 5902 B8 5903 B8
5904 B9 5905 B8 5906 B7 5907 A7 5908 A8 5929 A2 5930 A2
5932 B8 5941 B3 5942 B2 5943 B2 6901 A3 6943 B5 6944 A5
6945 A4 7901 B7 7941 B5 7942 B5 7943 B5 8901 B1 8902 B7



CN: ECO-002289	LCD SH4L		
CLASS NO. 3XX000	Audio Board LCD SH4L 170X5	3138 103 6053	4 2004-11-29 3 2004-09-16 2 2004-07-09 1 2004-06-11
2004-06-11			
NAME Kurtz Ko/Sandy	SUPERS 2	10 132 - 1	A3
CHECK	DATE 2004-06-11	© Philips Electronics N.V.	

Audio Board C.B.A(170X6)

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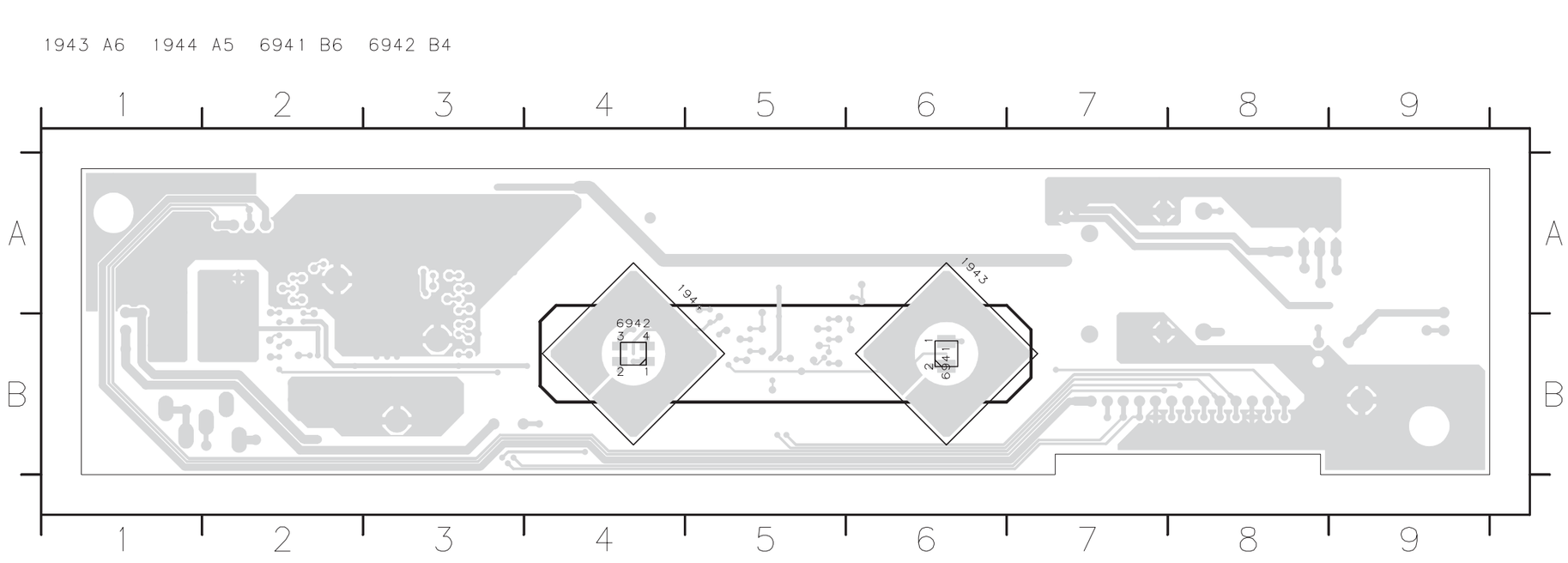
1943 A6 1944 A5 6941 B6 6942 B4



CN: ECO-002289			LCD SH4L			
CLASS NO. 3XX000	Audio Board LCD SH4L 170X5		3138 103 6053		4	2004-11-29
1 / 2 / 2004-06-11 3					~~3~~	~~2004-09-16~~
					~~2~~	~~2004-07-09~~
					~~1~~	~~2004-06-11~~
NAME Kurtz Ko/Sandy	SUPERS	2	10	132 - 2		A3
CHECK	DATE 2004-06-11	©	Philips Electronics N.V.			

AUDIO DIAGRAM(190X6)

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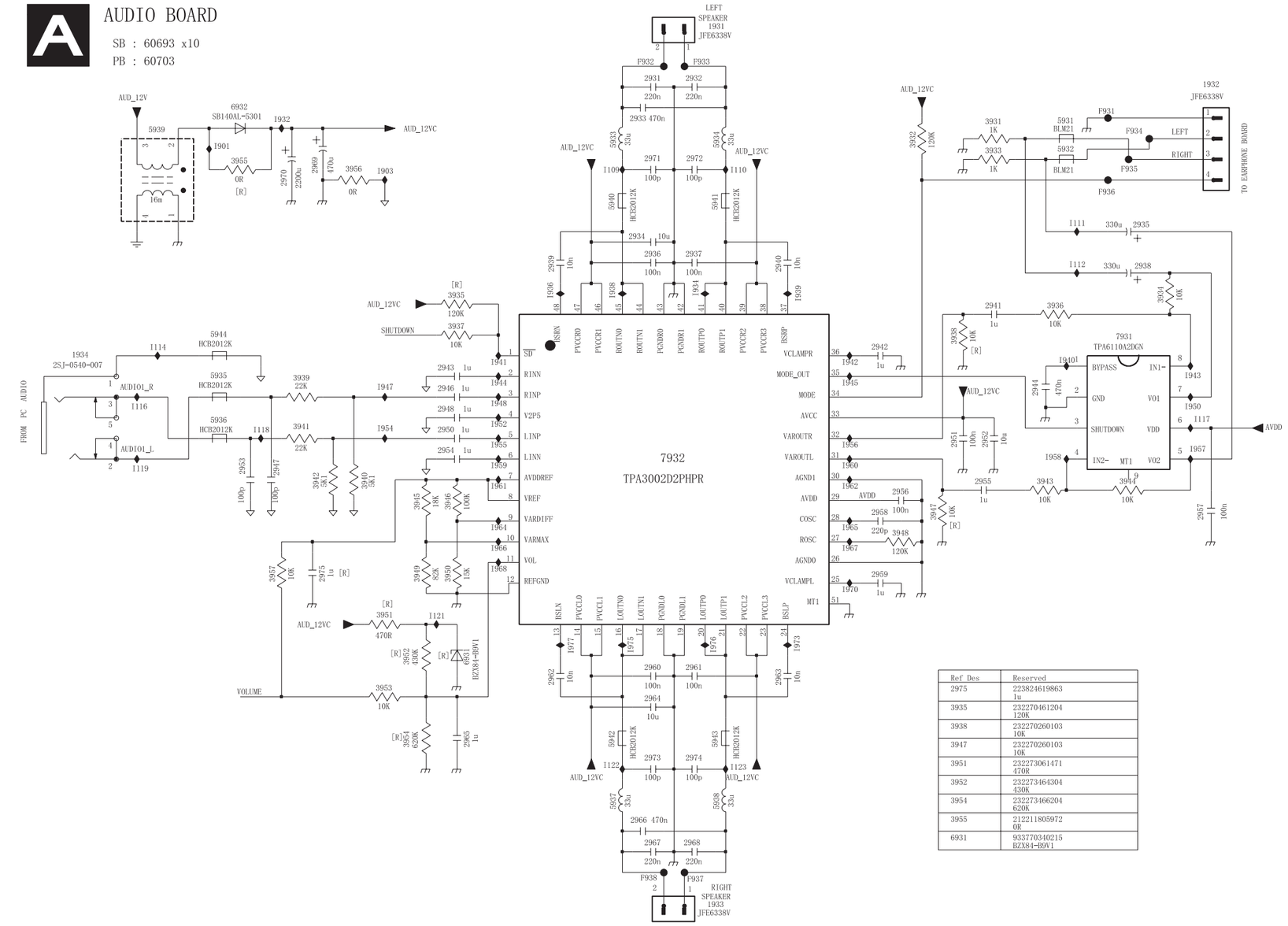
AUDIO BOARD

SB : 60693 x10
PB : 60703



Ref Des	Reserved
2975	223824619863 1u
3935	232270461204 120K
3938	232270260103 10K
3947	232270260103 10K
3951	232273061471 470R
3952	232273464304 430K
3954	232273466204 620K
3955	212211805972 0R
6931	933770340215 BZX84-B9V1

1931	A5
1932	A9
1933	F6
1934	C1
2931	A5
2932	A5
2933	A5
2934	B5
2935	B8
2936	B5
2937	B5
2938	B8
2939	B4
2940	B6
2941	B7
2942	C7
2943	C4
2944	C8
2946	C4
2947	D2
2948	C4
2950	C4
2951	C7
2952	C7
2953	D2
2954	C4
2955	D7
2956	D7
2957	D9
2958	D7
2959	D7
2960	E5
2961	E5
2962	E4
2963	E6
2964	E5
2965	E4
2966	F5
2967	F5
2968	F5
2969	A3
2970	B2
2971	A5
2972	A5
2973	F5
2974	F5
2975	F5
2976	D3
3931	A7
3932	A7
3933	A7
3934	B9
3935	B4
3936	B8
3937	C4
3938	C7
3939	C3
3940	D3
3941	C3
3942	D3
3943	D8
3944	D8
3945	D3
3946	D4
3947	D7
3948	D7
3949	D3
3950	D4
3951	E3
3952	E3
3953	E3
3954	E3
3955	A2
3956	B3
3957	D2
5931	A8
5932	A8
5933	A5
5934	A5
5935	C2
5936	C2
5937	F5
5938	F5
5939	A2
5940	B5
5941	B5
5942	E5
5943	E5
6931	E4
6932	A2
7931	C8
7932	D5
F931	A8
F932	A5
F933	A5
F934	A9
F935	A9
F936	B8
F937	F5
F938	F5
I901	A5
I903	A6
I109	A5
I110	A6
I111	B8
I112	B8
I114	C2
I116	C1
I117	C9
I118	C2
I119	C1
I121	E4
I122	F5
I123	F6
1901	A2
1903	B3
1932	A2
1934	B5
1936	B4
1938	B5
1939	B6
1940	C8
1941	C4
1942	C6
1943	C9
1944	C4
1945	C6
1947	C3
1948	C4
1950	C9
1952	C4
1954	C3
1955	C4
1956	C6
1957	C9
1958	C8
1959	D4
1960	D6
1961	D4
1962	D6
1964	D4
1965	D6
1966	D4
1967	D6
1968	D4
1970	D6
1973	E6
1975	E5
1976	E5
1977	E4

EXCEPT ITEM 1931, 1932, 1933, 1934, 2931, 2932, 2935, 2938, 2967, 2968, 2969, 2970, 5933, 5934, 5937, 5938, 5939, 6932 WERE CHIP COMPONENTS.

CHN	ECO-001687	SETNAME	LCD SH4L (HUDSON4 - 190X5)		
CLASS_NO		AUDIO 190X5FB/00		1	2004-08-23
2004-07-30	3		3138 158 5967		
NAME	Kurtz Ko / Joss Hung	SUPERS.	2	10	130 - 1	***	A3
	MGr	CHECK	********	DATE	2004-07-30	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2000	

AUDIO DIAGRAM(190X6)

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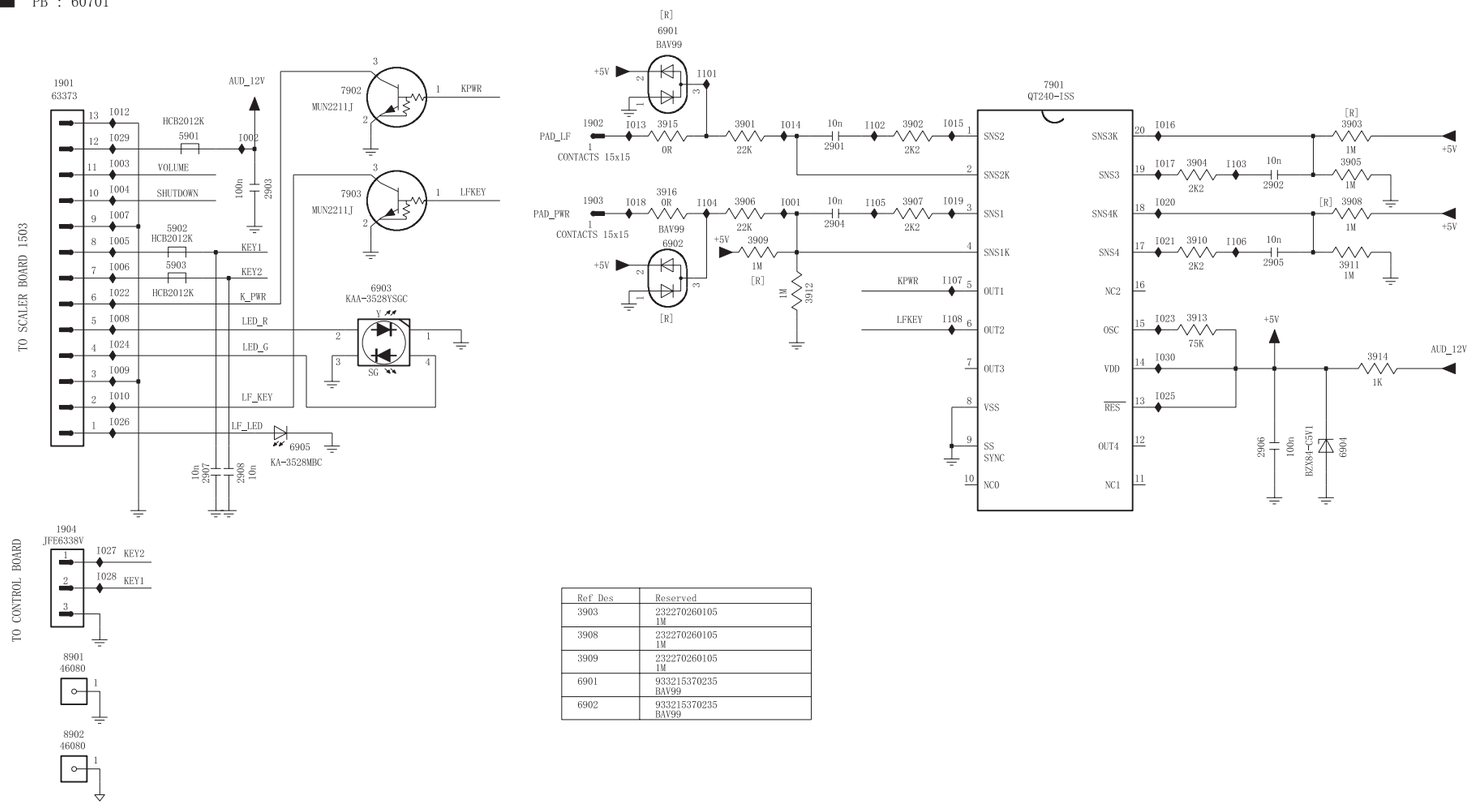
AUDIO BOARD

SB : 6069 x10
PB : 60701



Ref Des	Reserved
3903	232270260105 1M
3908	232270260105 1M
3909	232270260105 1M
6901	933215370235 BAV99
6902	933215370235 BAV99

EXCEPT ITEM 1901, 1902, 8901, 8902 WERE CHIP COMPONENTS.

1901 A2 I106 B8
1902 B5 I107 B7
1903 B5 I108 C7
1904 D2
2901 B6
2902 B8
2903 B3
2904 B6
2905 B8
2906 C8
2907 C2
2908 C3
3901 B5
3902 B6
3903 B9
3904 B8
3905 B9
3906 B5
3907 B6
3908 B9
3909 B5
3910 B8
3911 B9
3912 B6
3913 C8
3914 C9
3915 B5
3916 B5
5901 B2
5902 B2
5903 B2
6901 A5
6902 B5
6903 B3
6904 C9
6905 C3
7901 A7
7902 A3
7903 B3
8901 E2
8902 E2
1001 B6
1002 B3
1003 B2
1004 B2
1005 B2
1006 B2
1007 B2
1008 C2
1009 C2
1010 C2
1012 A2
1013 B5
1014 B6
1015 B7
1016 B8
1017 B8
1018 B5
1019 B7
1020 B8
1021 B8
1022 B2
1023 C8
1024 C2
1025 C8
1026 C2
1027 D2
1028 D2
1029 B2
1030 C8
1101 A5
1102 B6
1103 B8
1104 B5
1105 B6

CHN ECO-	SETNAME LCD SH4L (HUDSON4 - 190X5)		
CLASS_NO	PWR/LF KEY PAD 190X5FB/00	3138 158 5967	1 -------
2004-07-30 3			
NAME Kurtz Ko / Joss Hung	SUPERS. 2	130 - 2	A3
CHECK	DATE 2004-07-30	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2004	

Audio Board C.B.A(190X6)

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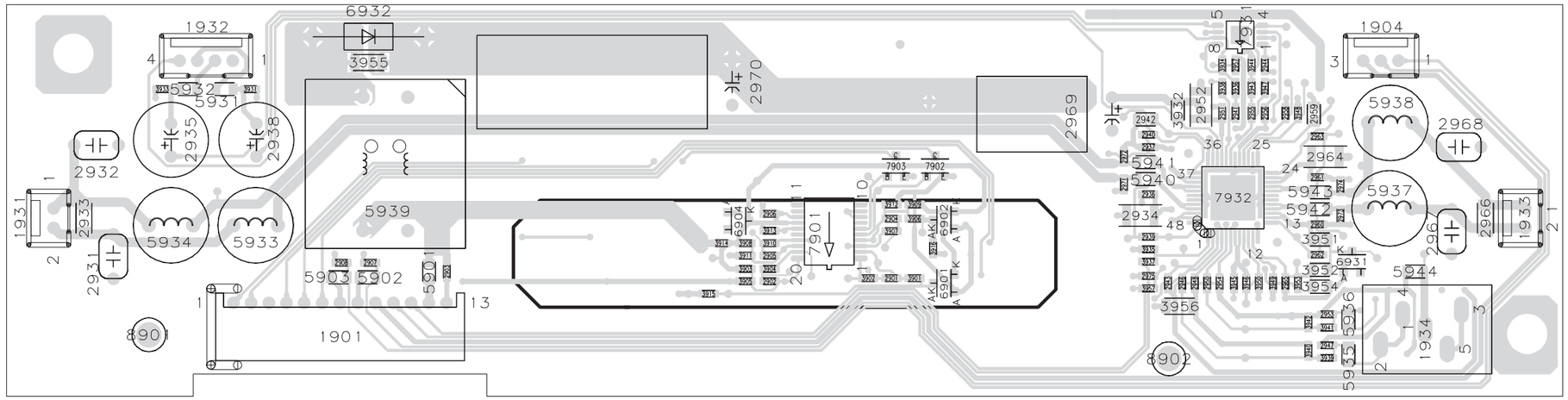
1901 B2 1904 A8 1931 A1 1932 A2 1933 B9 1934 B8 2901 B5 2902 B5 2903 B3 2904 B5
2905 B5 2906 A5 2907 B3 2908 B2 2931 B1 2932 A1 2933 A1 2934 A7 2935 A2 2936 A7
2937 A7 2938 A2 2939 B7 2940 A7 2941 A7 2942 A7 2943 B7 2944 A8 2946 B7 2947 B8
2948 B7 2950 B7 2951 A7 2952 A7 2953 B8 2954 B7 2955 A7 2956 A8 2957 A7 2958 A8
2959 A8 2960 B8 2961 A8 2962 B8 2963 A8 2964 A8 2965 B8 2966 A9 2967 B9 2968 A9
2969 A6 2970 A5 2971 A7 2972 A7 2973 A8 2974 A8 2975 B7 3901 B6 3902 B5 3903 B5
3904 B5 3905 B5 3906 B6 3907 B5 3908 B5 3909 A6 3910 B5 3911 B5 3912 A5 3913 B5
3914 B5 3915 B4 3916 B6 3931 A2 3932 A7 3933 A1 3934 A7 3935 B7 3936 A7 3937 B7
3938 A7 3939 B8 3940 B8 3941 B8 3942 B8 3943 A7 3944 A7 3945 B7 3946 B7 3947 A8
3948 A8 3949 B8 3950 B8 3951 B8 3952 B8 3953 B8 3954 B8 3955 A3 3956 B7 3957 B7
5901 B3 5902 B3 5903 B2 5931 A2 5932 A2 5933 B2 5934 B1 5935 B8 5936 B8 5937 A8
5938 A8 5939 A3 5940 A7 5941 A7 5942 A8 5943 A8 5944 B8
6901 B6 6902 B6 6904 B5
6931 B8 6932 A3
7901 B5 7902 A6 7903 A5
8901 B7 8902 B7



CN: EC0-001687	LCD SH4L				
CLASS NO. 3XX000	Audio Board LCD SH4L 190X5			3138 103 6069	3 2004-08-23 ~~2 2004-08-12~~ ~~1 2004-07-30~~
1 / 2 / 2004-07-30 3					
NAME Kurtz Ko/Joss	SUPERS	2	10	132 - 1	A3
CHECK	DATE 2004-07-30	© Philips Electronics N.V.			

Audio Board C.B.A(190X6)

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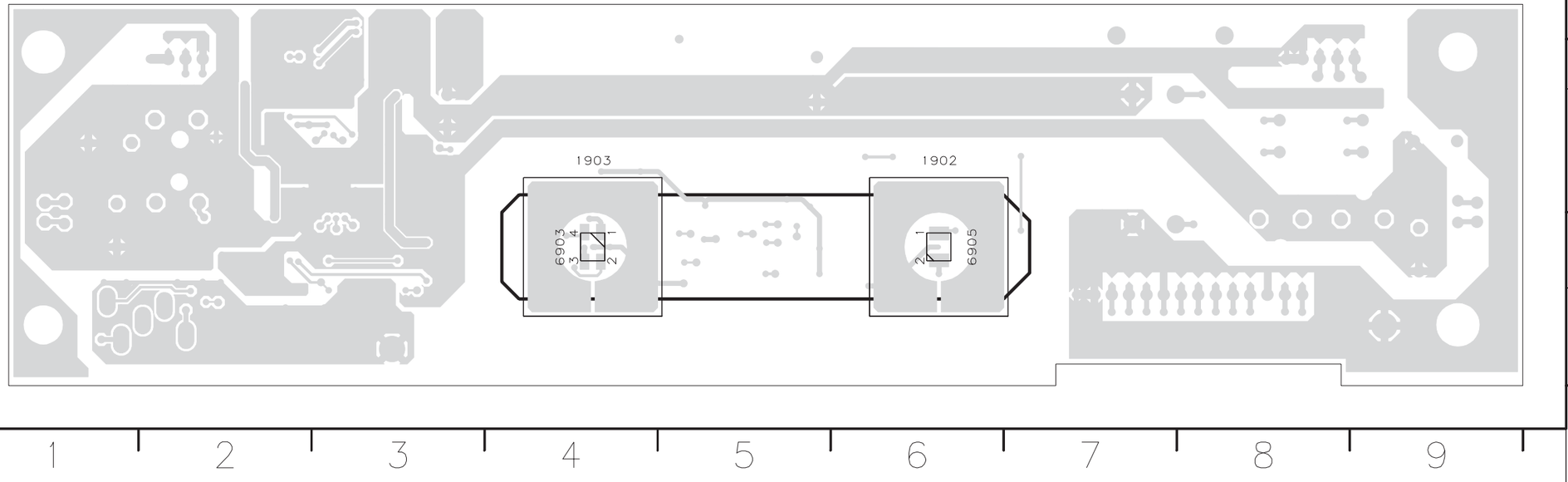
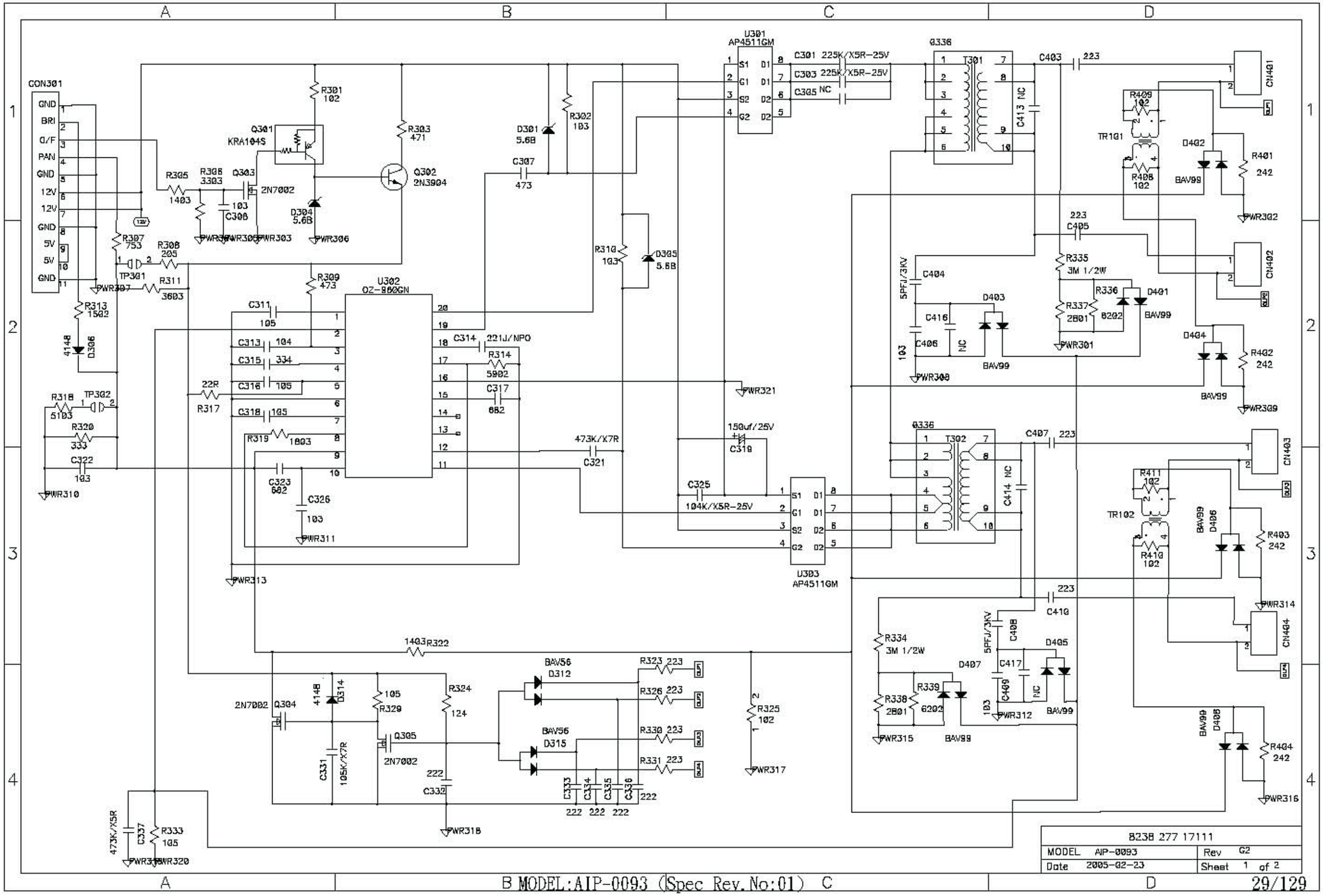
1902 A6 1903 A4 6903 B4 6905 B6



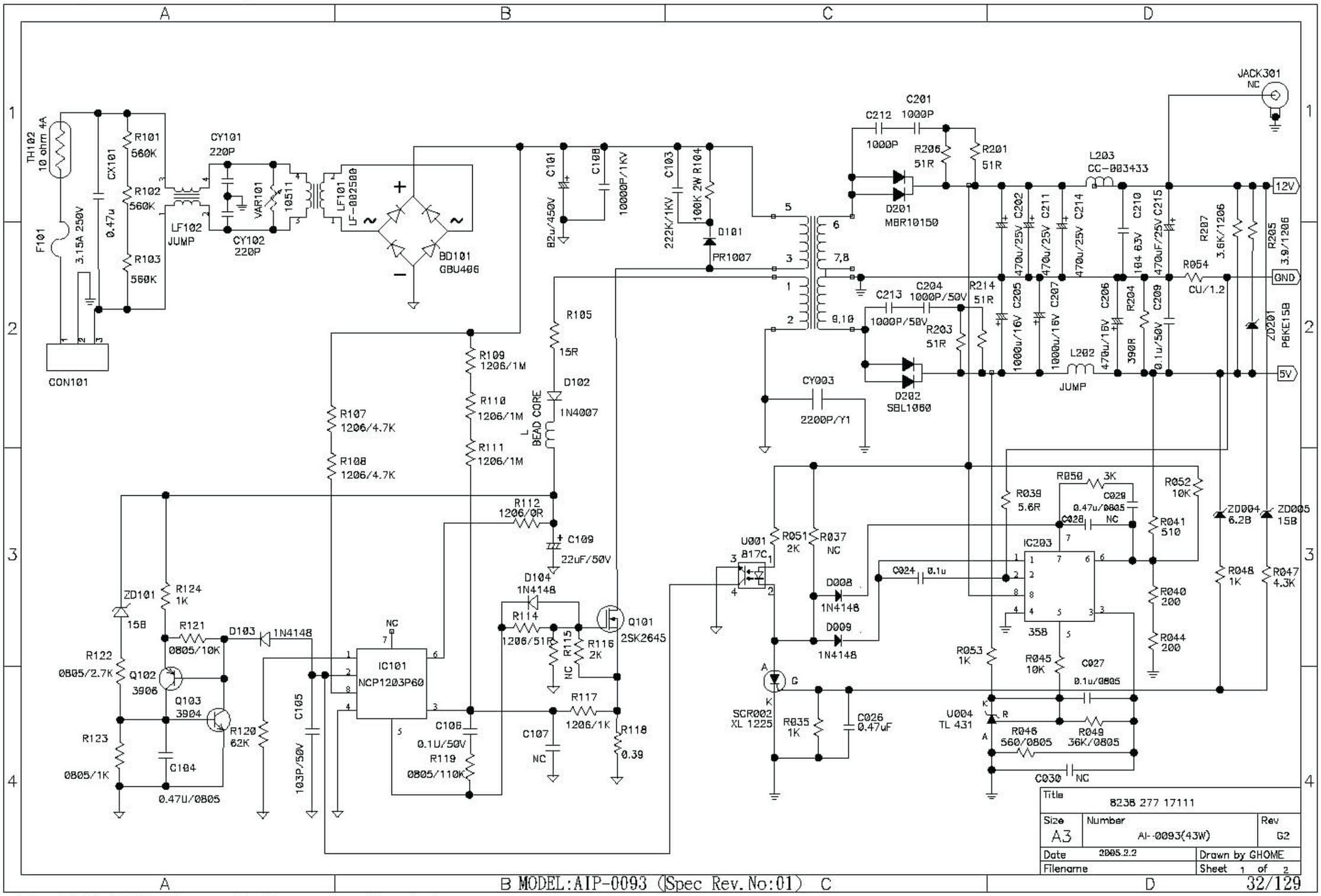
CN: ECO-001687					LCD SH4L		
CLASS NO. 3XX000	Audio Board LCD SH4L 190X5				3138 103 6069	3	2004-08-23
1 / 2 / 2004-07-30 3						2	~~2004-08-12~~
						1	~~2004-07-30~~
NAME Kurtz Ko/Joss	SUPERS	2	10	132 - 2		A3	
CHECK	DATE 2004-07-30	© Philips Electronics N.V.					

POWER DIAGRAM

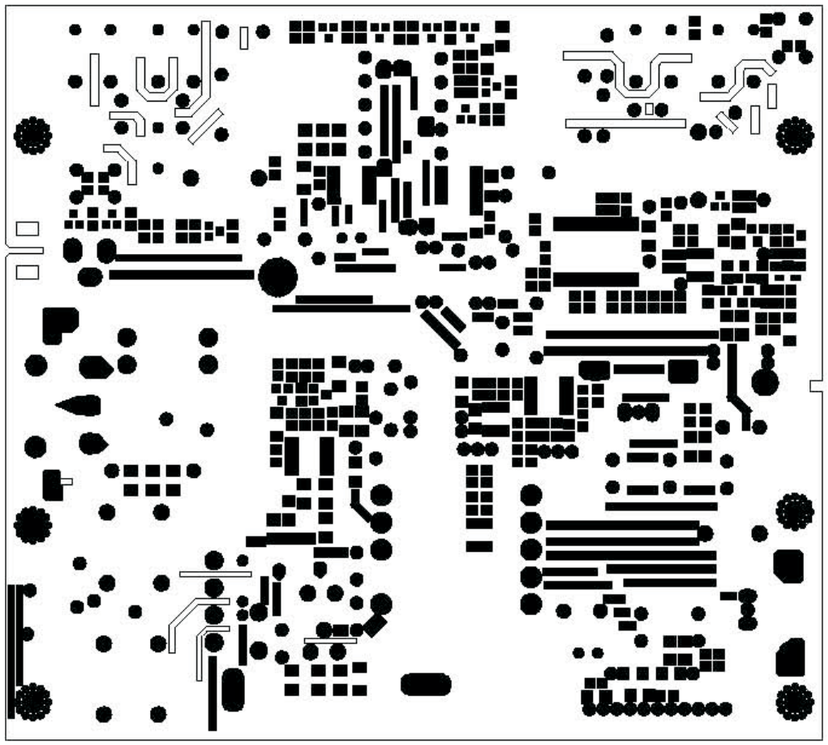


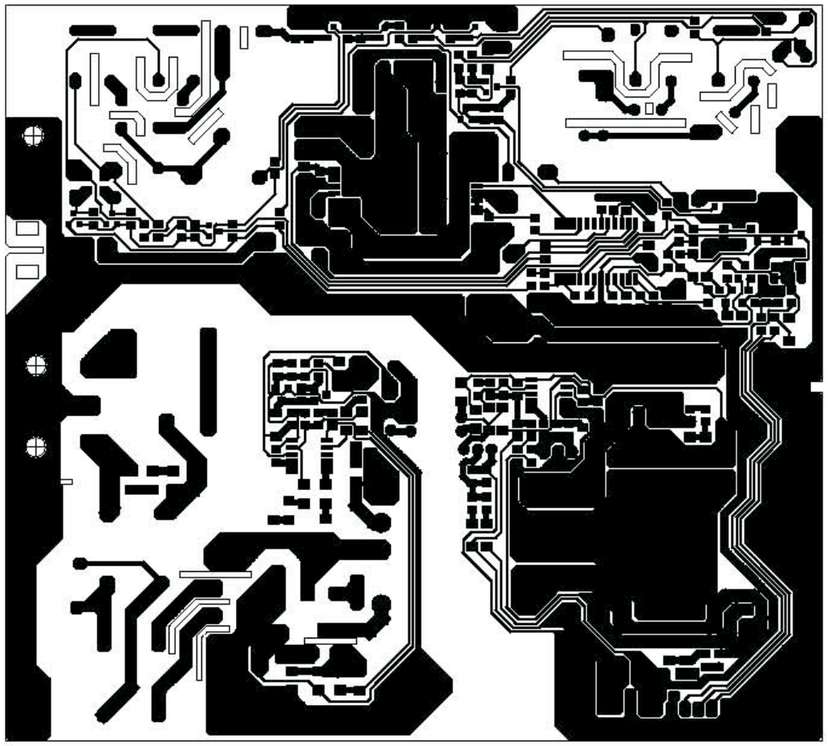
Go to cover page

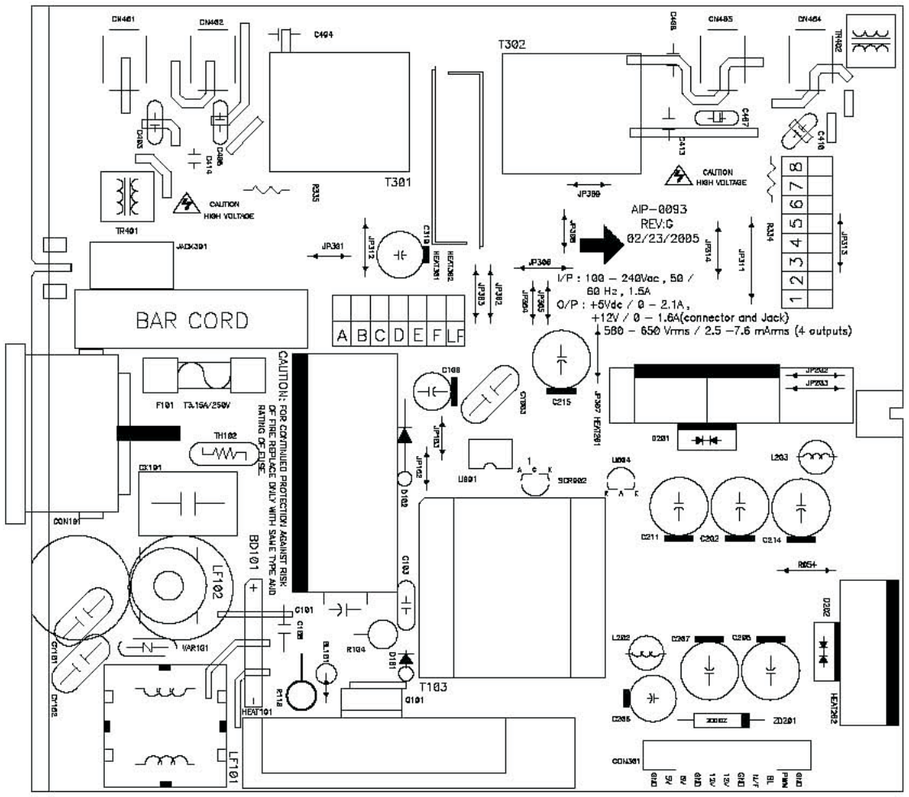
POWER DIAGRAM



Power Board C.B.A

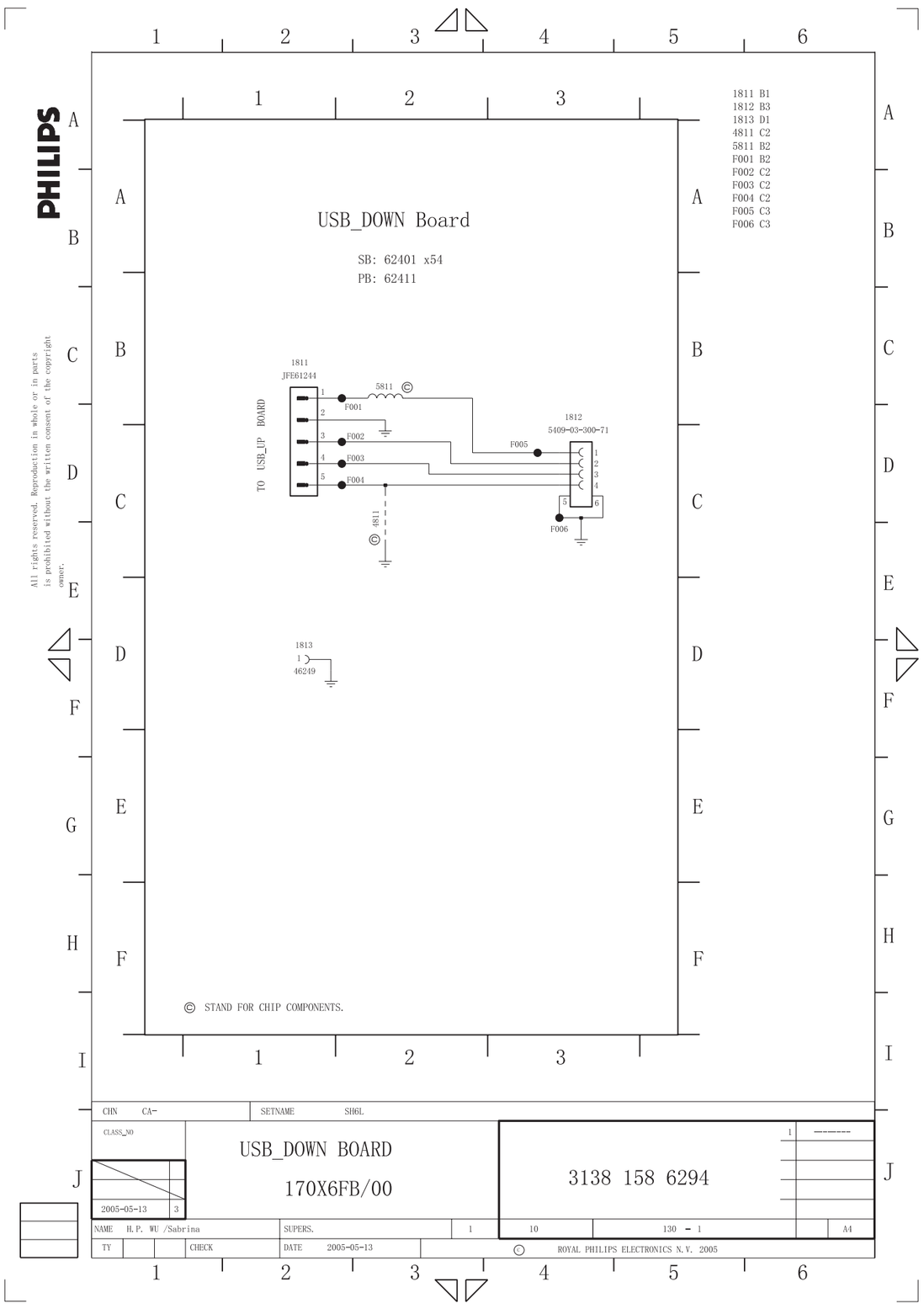


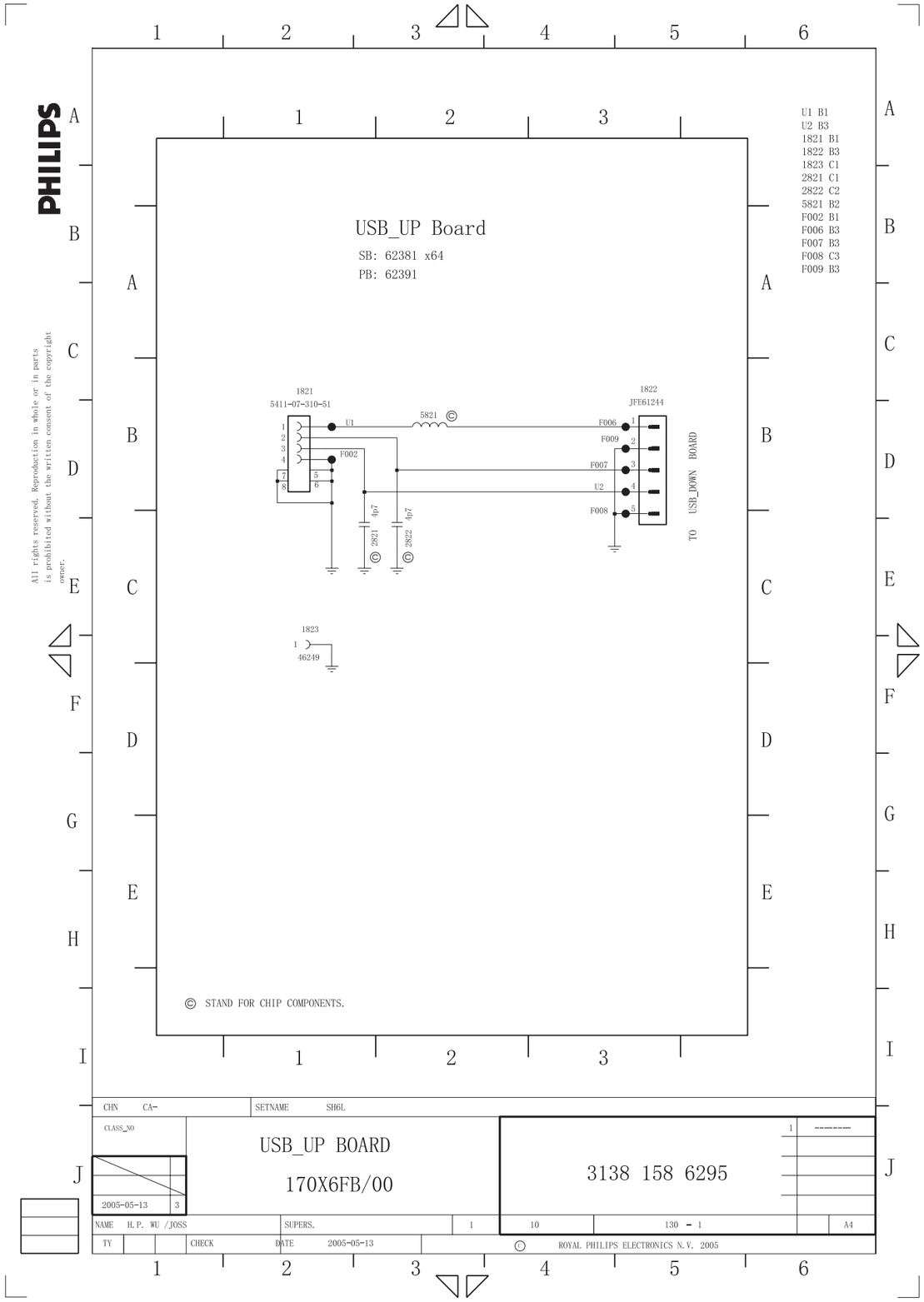



BAR CORD
A B C D E F LF
AIP-8093
REV:C
02/23/2005
I/P : 100 – 240Vac , 50 / 60 Hz , 1.5A
O/P : +5Vdc / 0 – 2.1A ,
+12V / 0 – 1.6A(connector and Jack)
580 – 650 Vrms / 2.5 –7.6 mArms (4 outputs)
CAUTION HIGH VOLTAGE
CAUTION: FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE.
F101 T3.15A/250V
BD101
LF102
T302
T301
T183
SCR902
ZD201
CON191
CON381
1 2 3 4 5 6 7 8

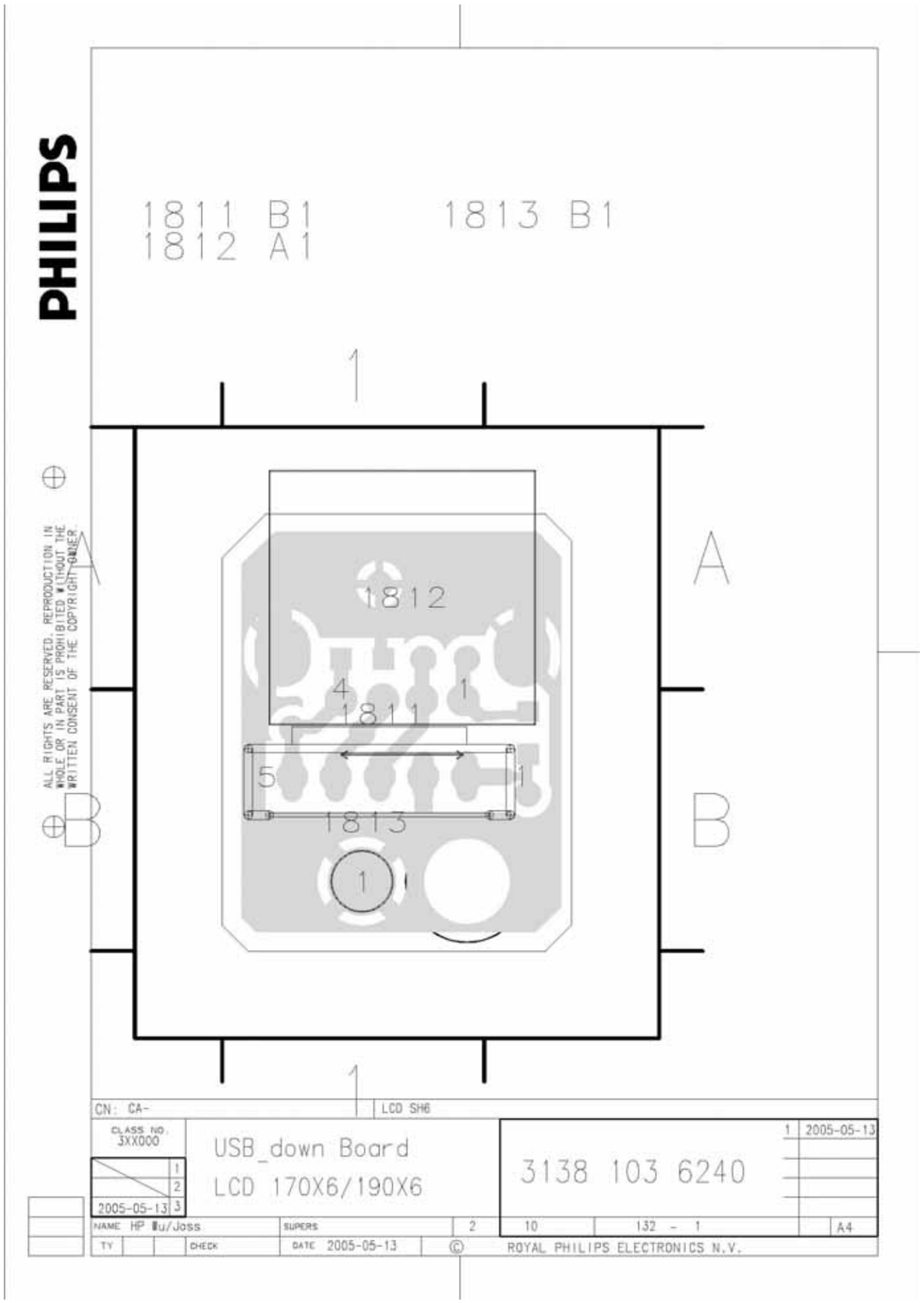
Go to cover page

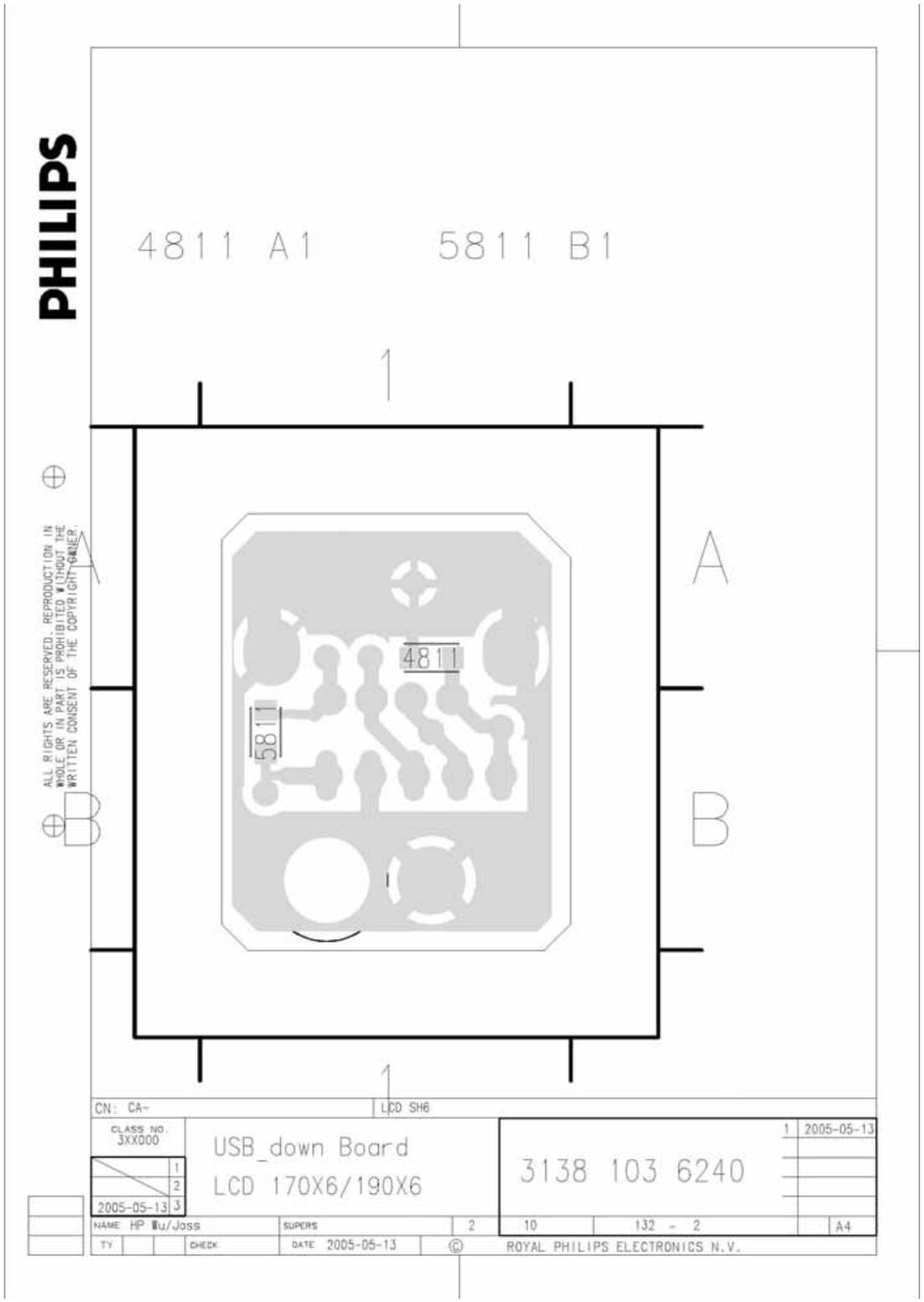
USB DIAGRAM





USB Board C.B.A





USB Board C.B.A

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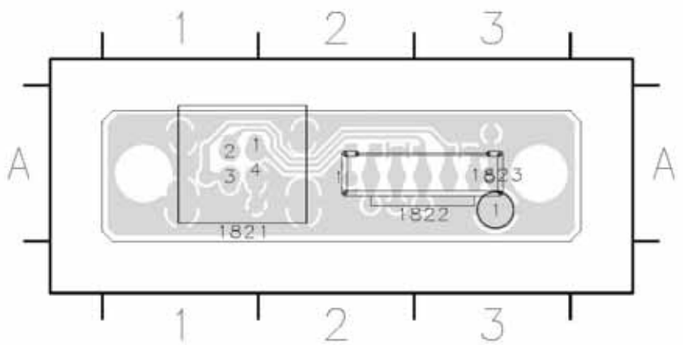
1821 A1 1822 A3 1823 A3



CN: CA-	LCD SH6				
CLASS NO. 3XX000	USB_up Board LCD 170X6/190X6	3138 103 6238		1	2005-05-13
2005-05-13					
NAME HP Wu/Joss	SUPERS	2	10	132 - 1	A4
TY CHECK	DATE 2005-05-13	© ROYAL PHILIPS ELECTRONICS N.V.			

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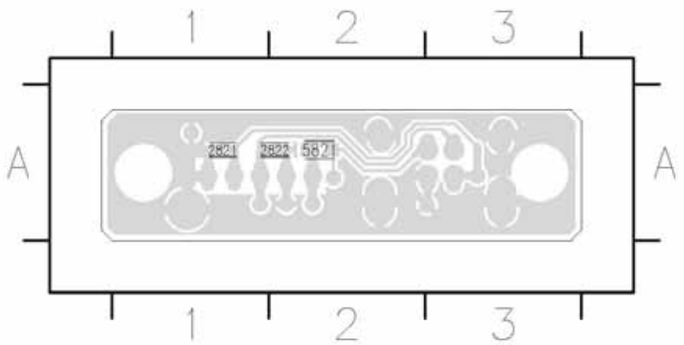
PHILIPS

2821 A1 2822 A2 5821 A2



CN: CA-	LCD SH6				
CLASS NO. 3XX000	USB_up Board LCD 170X6/190X6	3138 103 6238		1	2005-05-13
2005-05-13					
NAME HP Wu/Joss	SUPERS	2	10	132 - 2	A4
TY CHECK	DATE 2005-05-13	© ROYAL PHILIPS ELECTRONICS N.V.			

CONTROL&EARPHONE DIAGRAM

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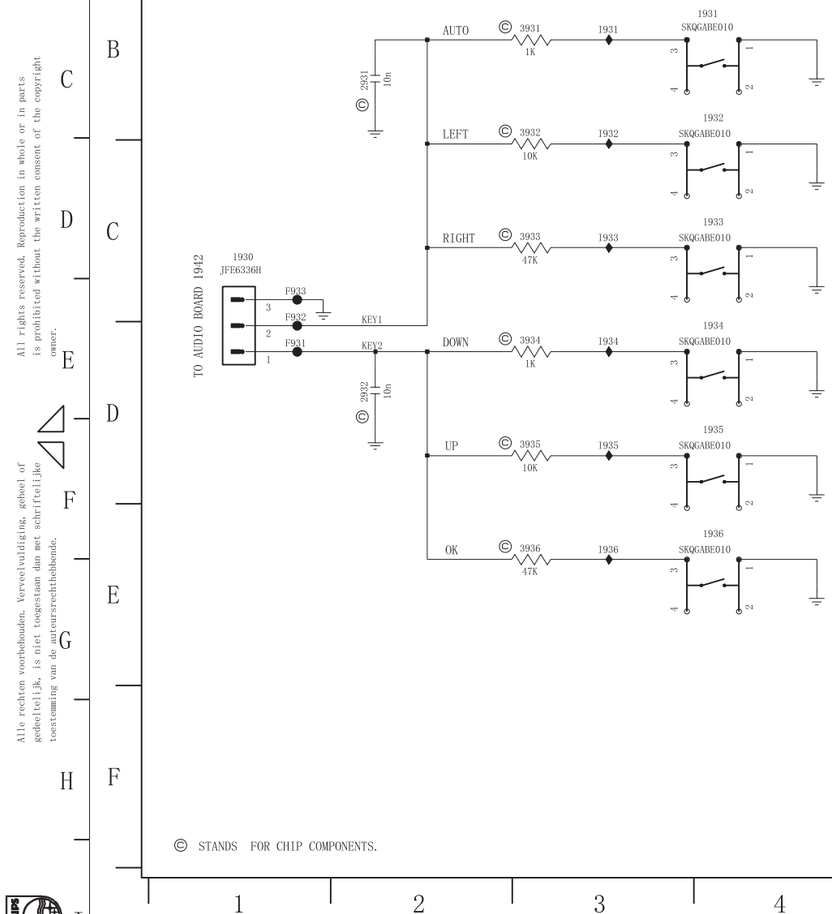
CONTROL BOARD

SB : 60571 x 36
PB : 60581

1930 C1
1931 B4
1932 B4
1933 C4
1934 D4
1935 D4
1936 E4
2931 B2
2932 D2
3931 B3
3932 B3
3933 C3
3934 D3
3935 D3
3936 E3
F931 D1
F932 C1
F933 C1
I931 B3
I932 B3
I933 C3
I934 D3
I935 D3
I936 E3



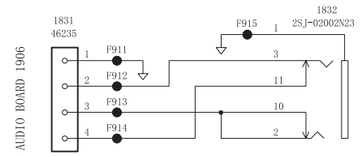
© STANDS FOR CHIP COMPONENTS.

CHN ECO-	SETNAME SH4L (HUDSON4-170X5)		
CLASS_NO	CONTROL BOARD 170X5FB/00	3138 158 5964	1 -------
2004-06-11 3			
NAME HP Wu/Stella Fann	SUPERS. 1	130 - 1	A4
CHECK	DATE 2004-06-11	© KONINKLIJKE PHILIPS ELECTRONICS N.V. 2004	

Earphone Board

SB : 62581 x 70
PB : 62591

1831 B1
1832 B2
F911 B1
F912 B1
F913 C1
F914 C1
F915 B2



CHN CA-	SETNAME SH6L		
CLASS_NO	Earphone Board 170X6FB/00	3138 158 6304	1 -------
2005-05-13 3			
NAME H.P WU/JOSS HUNG	SUPERS. 1	10	130 - 1 A4
TY CHECK	DATE 2005-05-13	© ROYAL PHILIPS ELECTRONICS N.V. 2005	

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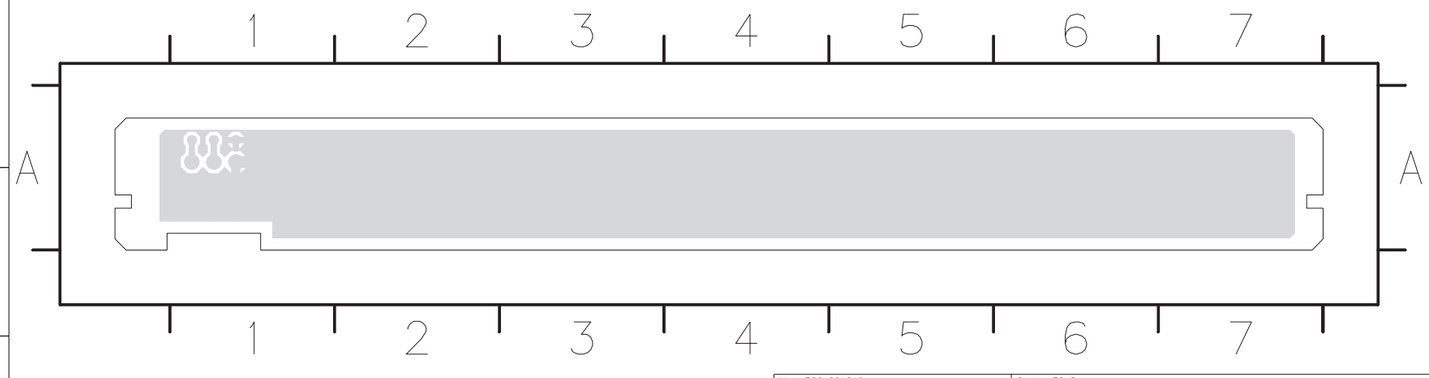
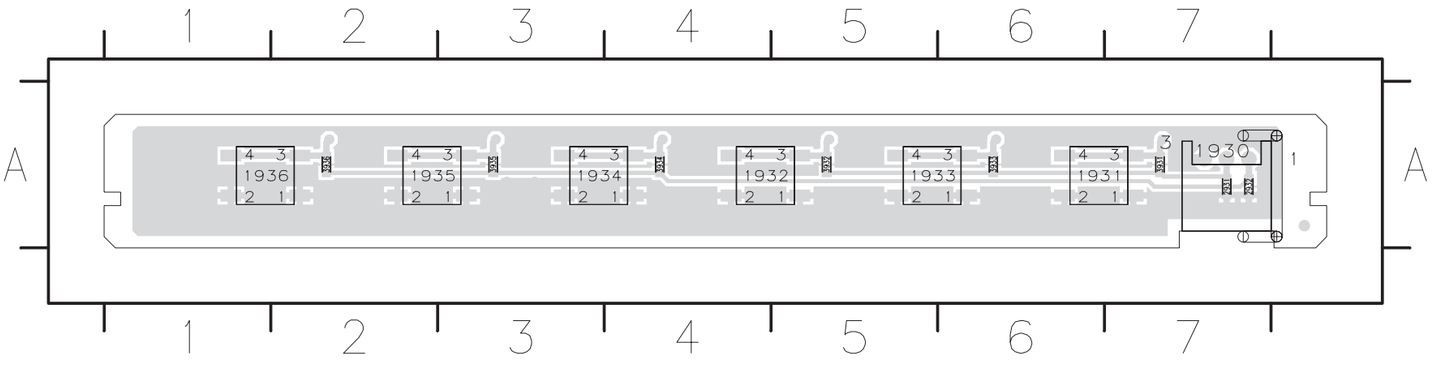
Special Notes: Item 1930 is placed on A side.



CN: ECO-001810	SH4L 170X5		
CLASS NO. 3XX000	Control Board LCD SH4L 170X5	3138 103 6057	3 2004-09-16 2 ~~2004-07-09~~ 1 ~~2004-06-11~~
2004-06-11			
NAME HP Wu/Stella	SUPERS 2	10 132 - 2	A3
CHECK	DATE 2004-06-11 © Philips Electronics N.V.		

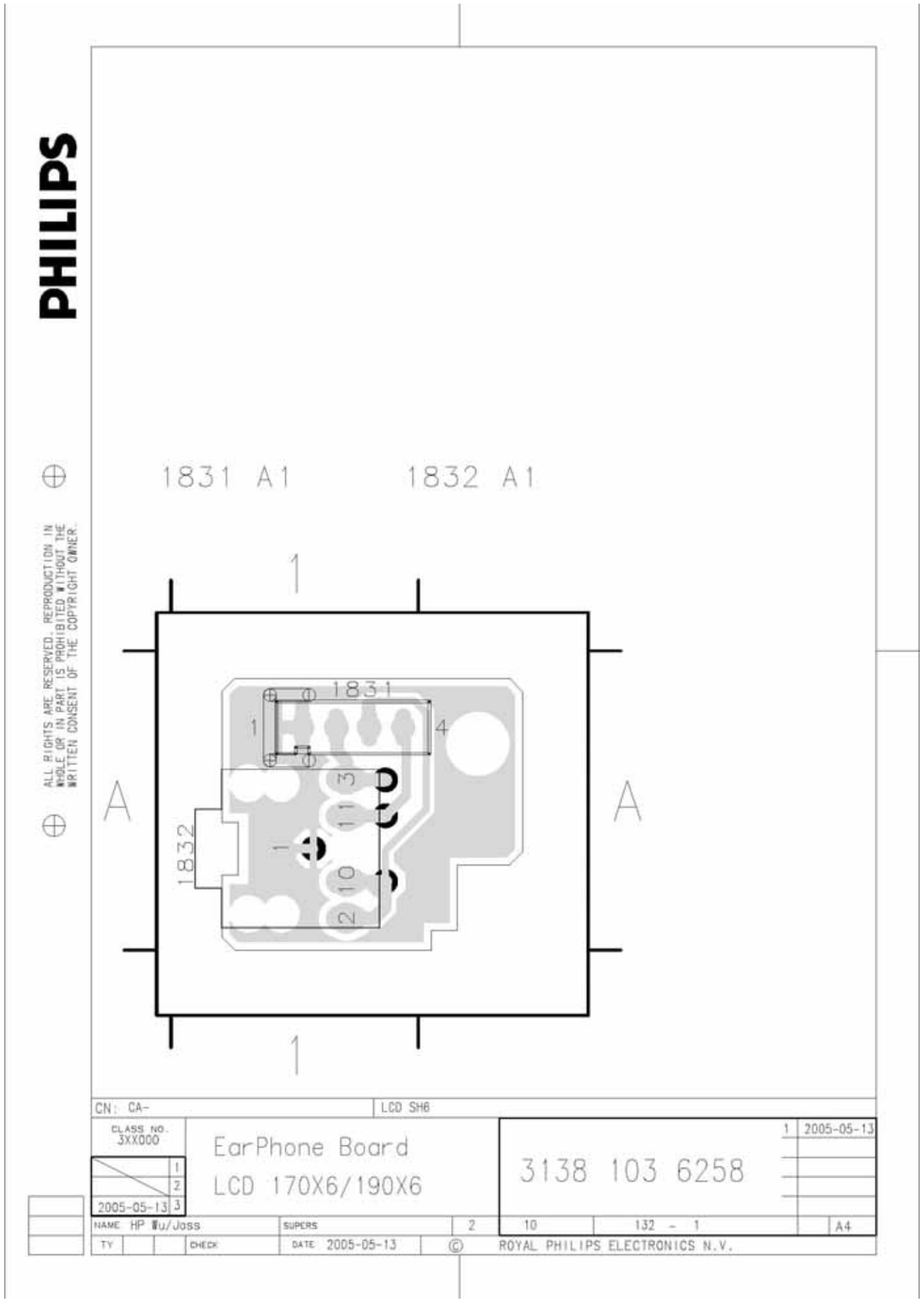
Special Notes: Item 1930 is placed on A side.

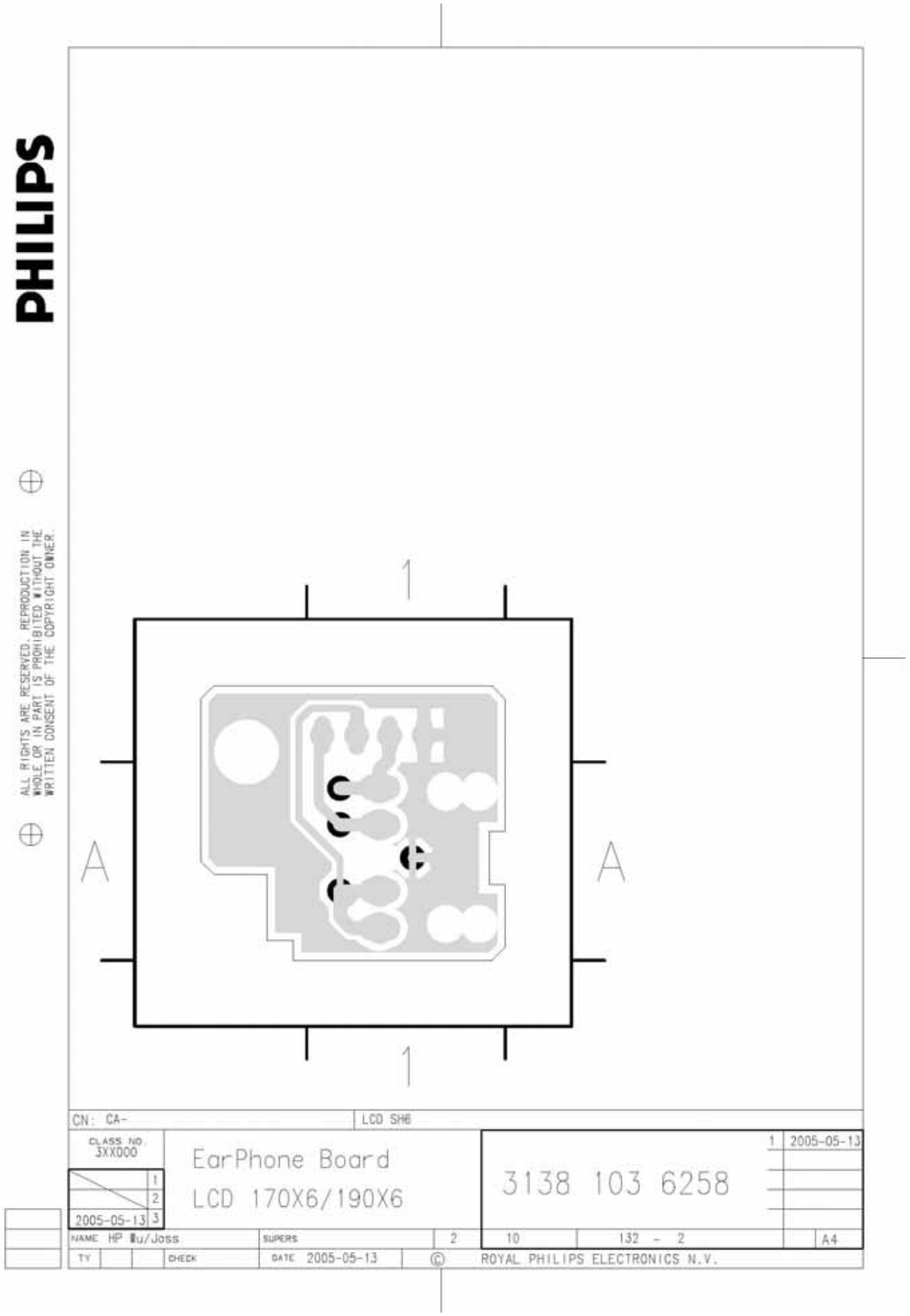
1930 A7 1932 A4 1934 A3 1936 A1 2932 A7 3932 A5 3934 A4 3936 A2
1931 A6 1933 A5 1935 A2 2931 A7 3931 A7 3933 A6 3935 A3



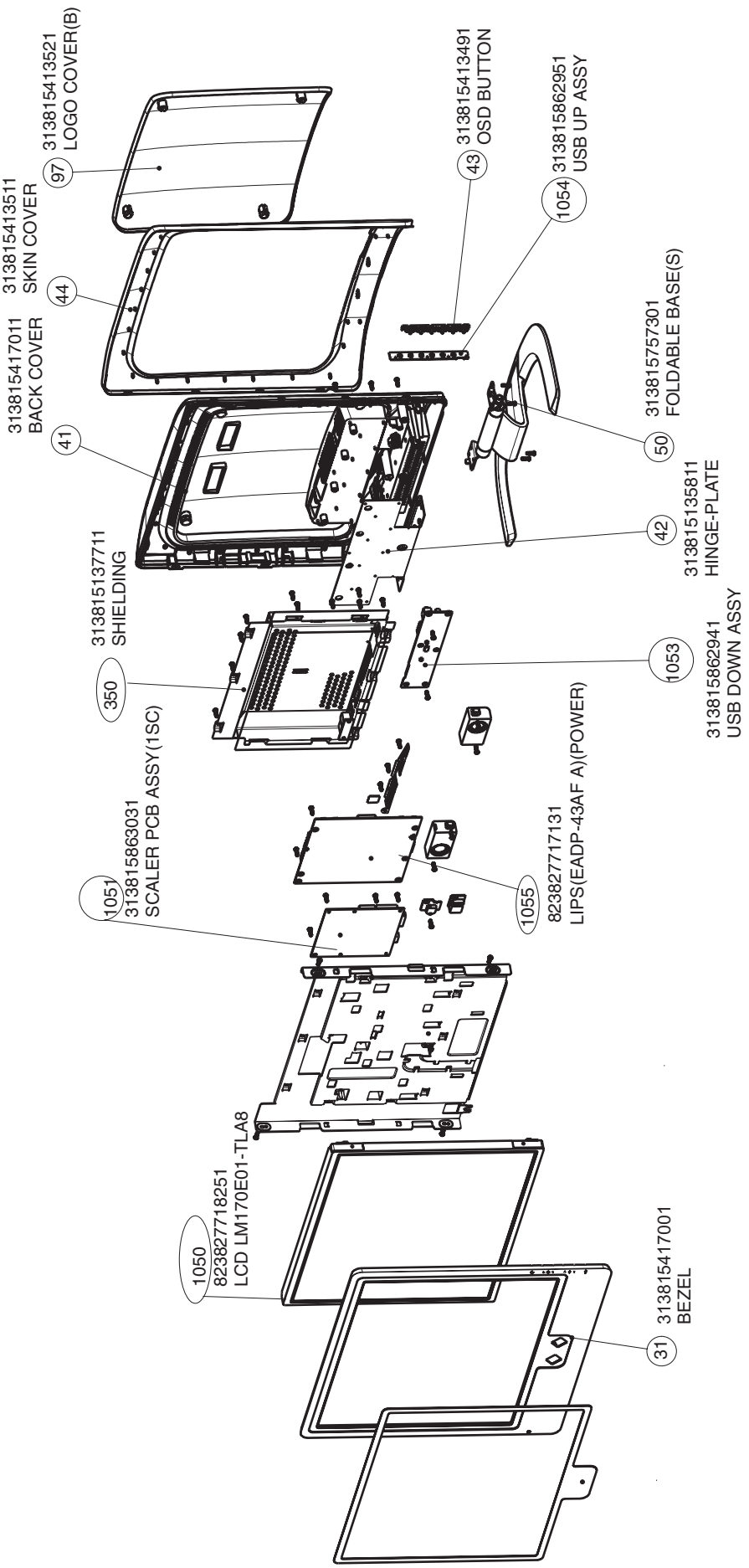
CN: ECO-001810	SH4L 170X5		
CLASS NO. 3XX000	Control Board LCD SH4L 170X5	3138 103 6057	3 2004-09-16 2 ~~2004-07-09~~ 1 ~~2004-06-11~~
2004-06-11			
NAME HP Wu/Stella	SUPERS 2	10 132 - 1	A3
CHECK	DATE 2004-06-11 © Philips Electronics N.V.		

EARPHONE BOARD C.B.A





EXPLODED VIEW(170X6)



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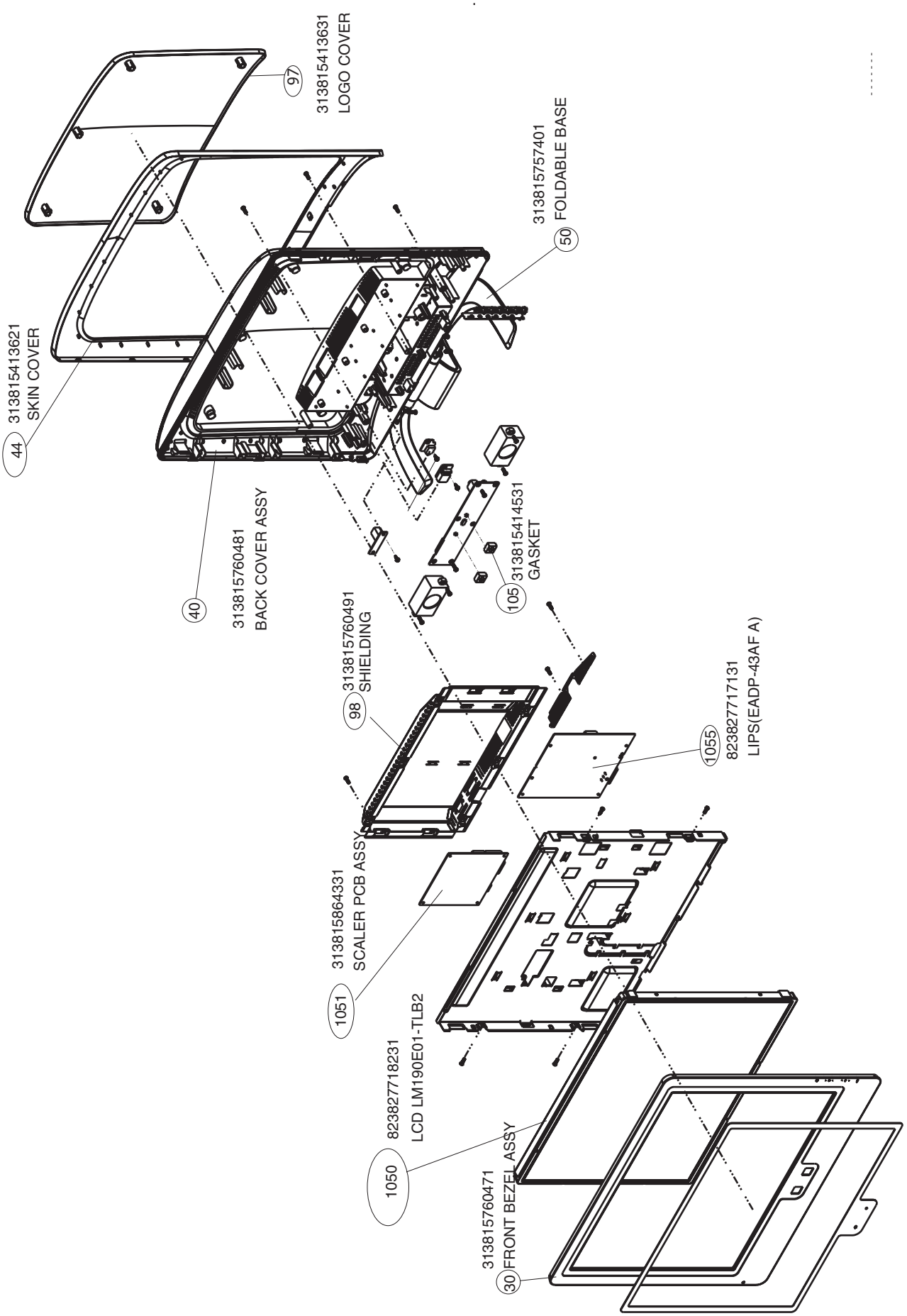

Recommended Parts List

Go to cover page

0030	313815760401	BEZEL ASSY
0031	313815417001	BEZEL
0033	313815567471	LIGHTFRAME STICKER
0040	313815760411	BACK COVER ASSY
0041	313815417011	BACK COVER
0042	313815135811	HINGE-PLATE
0043	313815413491	OSD BUTTON
0044	313815413511	SKIN COVER
0050	313815757301	FOLDABLE BASE(S)
0097	313815413521	LOGO COVER(B)
0098	313815760421	SHIELDING ASSY
0100	313815137701	AC BRACKET
0101	313810440571	HOUSING COVER
0350	313815137711	SHIELDING
0351	313815321131	INSULATE PLATE
1057	313815864371	FRAME+WIRE ASSY
7901	932219970668	IC SM TPA6030A4PWP (TI00) R
7941	823827715951	TOUCH SENSOR IC
7942	932209265685	TRA SIG SM MUN2211JG (ONSE) R
7943	932209265685	TRA SIG SM MUN2211JG (ONSE) R
8901	313819873811	CBLE FAST/100/FAST AWG18
8902	313819873811	CBLE FAST/100/FAST AWG18
7203	932216972682	IC SM AT24C02N-10SC-2.7(ATME)L
7204	932216972682	IC SM AT24C02N-10SC-2.7(ATME)L
7211	932217126668	IC SM 74LCX14T (ST00) R
7301	313815863051	CPU IC ASSY 7301
7301	823827715141	FLASH
7302	313815863061	EEPROM IC ASSY 7302
7302	932218650682	IC AT24C16A-10PU-2.7 (ATME) L
7403	932220099685	IC SM LD1117AS18 (ST00) R
7404	932220818671	IC SM GM5321-BC (GEMI) Y
7405	932222076668	IC SM AME1117CCGTZ (AME0) R
7501	932217439685	TRA SIG SM BC857C (KEC0) R
7502	932217439685	TRA SIG SM BC857C (KEC0) R
7503	932209265685	TRA SIG SM MUN2211JG (ONSE) R
7504	932216638668	FET POW SM SI5441DC-E3 (VISH)R
7505	932217439685	TRA SIG SM BC857C (KEC0) R
7506	932209265685	TRA SIG SM MUN2211JG (ONSE) R
7507	932209265685	TRA SIG SM MUN2211JG (ONSE) R
7508	932216638668	FET POW SM SI5441DC-E3 (VISH)R
7509	932217439685	TRA SIG SM BC857C (KEC0) R
7601	932219359668	IC SM AME8815AEGT150Z (AME0) R
7602	932218246668	IC SM AME8815AEGT250Z (AME0) R
7603	823827716651	LIGHT FRAME IC

7901	823827715951	TOUCH SENSOR IC
7902	932217440685	TRA SIG SM KRC102S (KEC0) R
7903	932217440685	TRA SIG SM KRC102S (KEC0) R
7931	932220946668	IC SM TPA6110A2DGN (TI00) R
7932	932220359668	IC SM TPA3002D2PHP (TI00) R
8901	313819873811	CBLE FAST/100/FAST AWG18
8902	313819873811	CBLE FAST/100/FAST AWG18

Spare Parts List

MODEL:190X6FB/00

Mechanical parts

0030	313815760471	FRONT BEZEL ASSY
0031	313815417021	BEZEL
0033	313815567471	LIGHTFRAME STICKER
0040	313815760481	BACK COVER ASSY
0041	313815417031	BACK COVER
0042	313815135871	HINGE PLATE
0043	313815414821	OSD BUTTON
0044	313815413621	SKIN COVER
0050	313815757401	FOLDABLE BASE
0097	313815413631	LOGO COVER
0098	313815760491	SHIELDING ASSY
0100	313815137701	AC BRACKET
0101	313810440571	HOUSING COVER
0105	313815414531	GASKET
0350	313815137721	SHIELDING
0351	313815320941	INSULATE PLATE
1057	313815864361	FRAME+WIRE ASSY

LCD PANEL

1050	823827718231	LCD LM190E01-TLB2

Packing

0129	313810632613	PE BAG
0450	313815640921	CARTON
0451	313815637991	CUSHION-R
0452	313815638001	CUSHION-L
0453	313810656651	PE BAG

PCB ASSY

1051	313815864331	SCALER PCB ASSY
1052	313815859671	AUDIO ASSY
1053	313815862941	USB DOWN ASSY
1054	313815862951	USB UP ASSY
1055	823827717131	LIPS(EADP-43AF A)
1056	313815859641	CONTROL ASSY
1065	313815863041	EAR PHONE PCB ASSY

Accessory

0602	313811708651	E-D.F.U.
1059	313818875051	SPEAKER CABLE(BLACK)
1060	313818877821	CORD SUB-D 15/1M8/SUB-D 15 M/M
1061	313812874931	MAINSCORD
1062	313819871401	CBLE-030 30/135/30-012 AWG28
1063	313819872531	CORD USB A/1M8/USB B BK
1070	313819875811	LSP BOX 8R 3W-L(P6032B-L)
1071	313819875821	LSP BOX 8R 3W-R(P6032B-R)
1201	242203300521	SOC DVI H 24P F 1.91DVI-D Y
1203	242202518065	SOC SUBD H 15P F BU 900 Y
1302	243803100435	SOC IC V 8P F 2.54 DIL L
1410	243854300086	RES XTL SM 14M318 18P HC49/S R
1502	242202518824	CON V 11P M 2.00 63391 B
1503	242202518089	CON V 12P M 2.00 63392 B
1508	242202518814	CON V 2P M 2.00 63382 B
1603	242202505572	CON H 30P M 1.25 SM 60952 R

Miscellanea

0291	313815567521	LABEL-CPU
0295	313815567531	LABEL-EEPROM-LPL
0615	313811708731	HEX CODE OF F/W(NO MATL REQ)
4444	313810610477	CD ROM - SERVICE MANUAL
4444	313810610478	SERVICE MANUAL
8061	313819875951	CBLE-023 13/240/12+2 AWG28
8062	313819875961	CBLE-385 5/150/5-385 AWG22
8063	313819873331	CBLE-263 3/170/3-263 AWG28

PCB ASSY

1051 313815864331 SCALER PCB ASSY

2209	223878615649	CER2 0603 X7R 16V 100N PM10 R
2211	223886715331	CER1 0603 NP0 50V 330P PM5 R
2212	223886715331	CER1 0603 NP0 50V 330P PM5 R
2214	223878615649	CER2 0603 X7R 16V 100N PM10 R
2216	223886715331	CER1 0603 NP0 50V 330P PM5 R
2217	223886715331	CER1 0603 NP0 50V 330P PM5 R
2218	223886715339	CER1 0603 NP0 50V 33P PM5 R
2219	223886715221	CER1 0603 NP0 50V 220P PM5 R
2220	223878615649	CER2 0603 X7R 16V 100N PM10 R
2221	223878615649	CER2 0603 X7R 16V 100N PM10 R
2225	223858615636	CER2 0603 X7R 50V 10N PM10 R
2227	223858615636	CER2 0603 X7R 50V 10N PM10 R
2229	223858615636	CER2 0603 X7R 50V 10N PM10 R
2231	223858615636	CER2 0603 X7R 50V 10N PM10 R
2233	223878615649	CER2 0603 X7R 16V 100N PM10 R
2234	223878615649	CER2 0603 X7R 16V 100N PM10 R
2235	223878615649	CER2 0603 X7R 16V 100N PM10 R
2301	223878615649	CER2 0603 X7R 16V 100N PM10 R
2302	223878615649	CER2 0603 X7R 16V 100N PM10 R
2401	202002191778	ELCAP SM RVJ 16V 100U PM20 R
2402	202203100179	ELCAP SM HV 25V 10U PM20 R
2403	223878615649	CER2 0603 X7R 16V 100N PM10 R
2404	223878615649	CER2 0603 X7R 16V 100N PM10 R
2405	223878615649	CER2 0603 X7R 16V 100N PM10 R
2406	223878615649	CER2 0603 X7R 16V 100N PM10 R
2407	223878615649	CER2 0603 X7R 16V 100N PM10 R
2408	202203100179	ELCAP SM HV 25V 10U PM20 R
2409	223878615649	CER2 0603 X7R 16V 100N PM10 R
2410	223878615649	CER2 0603 X7R 16V 100N PM10 R
2411	223878615649	CER2 0603 X7R 16V 100N PM10 R
2412	223878615649	CER2 0603 X7R 16V 100N PM10 R
2413	223878615649	CER2 0603 X7R 16V 100N PM10 R
2414	223878615649	CER2 0603 X7R 16V 100N PM10 R
2415	223878615649	CER2 0603 X7R 16V 100N PM10 R
2416	223878615649	CER2 0603 X7R 16V 100N PM10 R
2417	223878615649	CER2 0603 X7R 16V 100N PM10 R
2418	202202000789	ELCAP SM LV 16V 10U PM20 R
2419	223878615649	CER2 0603 X7R 16V 100N PM10 R
2420	202202000789	ELCAP SM LV 16V 10U PM20 R
2421	223878615649	CER2 0603 X7R 16V 100N PM10 R
2422	202203100179	ELCAP SM HV 25V 10U PM20 R
2423	223878615649	CER2 0603 X7R 16V 100N PM10 R
2424	223878615649	CER2 0603 X7R 16V 100N PM10 R
2425	223878615649	CER2 0603 X7R 16V 100N PM10 R
2426	223878615649	CER2 0603 X7R 16V 100N PM10 R
2427	223878615649	CER2 0603 X7R 16V 100N PM10 R
2428	202203100179	ELCAP SM HV 25V 10U PM20 R
2429	202203100179	ELCAP SM HV 25V 10U PM20 R
2430	202203100179	ELCAP SM HV 25V 10U PM20 R
2431	223878615649	CER2 0603 X7R 16V 100N PM10 R
2432	223878615649	CER2 0603 X7R 16V 100N PM10 R
2433	223878615649	CER2 0603 X7R 16V 100N PM10 R
2434	223878615649	CER2 0603 X7R 16V 100N PM10 R
2435	202203100179	ELCAP SM HV 25V 10U PM20 R
2436	223878615649	CER2 0603 X7R 16V 100N PM10 R
2437	202203100179	ELCAP SM HV 25V 10U PM20 R
2438	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2439	202203100179	ELCAP SM HV 25V 10U PM20 R
2440	223878615649	CER2 0603 X7R 16V 100N PM10 R
2441	223878615649	CER2 0603 X7R 16V 100N PM10 R
2442	223878615649	CER2 0603 X7R 16V 100N PM10 R
2443	223878615649	CER2 0603 X7R 16V 100N PM10 R
2444	223878615649	CER2 0603 X7R 16V 100N PM10 R
2445	223878615649	CER2 0603 X7R 16V 100N PM10 R
2446	223878615649	CER2 0603 X7R 16V 100N PM10 R
2450	223886715478	CER1 0603 NP0 50V 4P7 PM0P25 R
2451	223886715478	CER1 0603 NP0 50V 4P7 PM0P25 R
2453	223858615632	CER2 0603 X7R 50V 4N7 PM10 R
2454	223858615636	CER2 0603 X7R 50V 10N PM10 R
2455	223858615636	CER2 0603 X7R 50V 10N PM10 R
2456	223858615636	CER2 0603 X7R 50V 10N PM10 R
2457	223886715109	CER1 0603 NP0 50V 10P PM5 R
2460	223878615649	CER2 0603 X7R 16V 100N PM10 R
2461	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2462	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2501	223878615649	CER2 0603 X7R 16V 100N PM10 R
2502	223878615649	CER2 0603 X7R 16V 100N PM10 R
2503	202203100206	ELCAP SM HV 25V 47U PM20 R
2507	223878615649	CER2 0603 X7R 16V 100N PM10 R
2508	223878615649	CER2 0603 X7R 16V 100N PM10 R
2509	202203100206	ELCAP SM HV 25V 47U PM20 R
2510	223878615649	CER2 0603 X7R 16V 100N PM10 R
2511	223886715101	CER1 0603 NP0 50V 100P PM5 R
2512	223878615649	CER2 0603 X7R 16V 100N PM10 R
2514	223878615649	CER2 0603 X7R 16V 100N PM10 R
2515	223878615649	CER2 0603 X7R 16V 100N PM10 R
2516	223878615649	CER2 0603 X7R 16V 100N PM10 R
2517	223878615649	CER2 0603 X7R 16V 100N PM10 R
2518	223878615649	CER2 0603 X7R 16V 100N PM10 R
2519	223878615649	CER2 0603 X7R 16V 100N PM10 R
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2521	202203100206	ELCAP SM HV 25V 47U PM20 R
2522	223878615649	CER2 0603 X7R 16V 100N PM10 R
2523	223878615649	CER2 0603 X7R 16V 100N PM10 R
2524	223858615636	CER2 0603 X7R 50V 10N PM10 R
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2601	223878615649	CER2 0603 X7R 16V 100N PM10 R
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2603	223878615649	CER2 0603 X7R 16V 100N PM10 R
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2608	223878615649	CER2 0603 X7R 16V 100N PM10 R
2609	202203100179	ELCAP SM HV 25V 10U PM20 R
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2612	223878615649	CER2 0603 X7R 16V 100N PM10 R
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2614	202203100179	ELCAP SM HV 25V 10U PM20 R
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2616	202203100179	ELCAP SM HV 25V 10U PM20 R
2617	223878615649	CER2 0603 X7R 16V 100N PM10 R
2618	202203100179	ELCAP SM HV 25V 10U PM20 R
2619	223878615649	CER2 0603 X7R 16V 100N PM10 R
2620	223878615649	CER2 0603 X7R 16V 100N PM10 R
2621	223878615649	CER2 0603 X7R 16V 100N PM10 R
2622	223878615649	CER2 0603 X7R 16V 100N PM10 R
2623	223878615649	CER2 0603 X7R 16V 100N PM10 R
2624	223878615649	CER2 0603 X7R 16V 100N PM10 R
2625	202203100179	ELCAP SM HV 25V 10U PM20 R
2626	223878615649	CER2 0603 X7R 16V 100N PM10 R
2627	223878615649	CER2 0603 X7R 16V 100N PM10 R
2628	223878615649	CER2 0603 X7R 16V 100N PM10 R
2629	223878615649	CER2 0603 X7R 16V 100N PM10 R
2630	202203100179	ELCAP SM HV 25V 10U PM20 R
2632	223878615649	CER2 0603 X7R 16V 100N PM10 R
2633	202203100179	ELCAP SM HV 25V 10U PM20 R
2634	223878615649	CER2 0603 X7R 16V 100N PM10 R
2636	223878615649	CER2 0603 X7R 16V 100N PM10 R
2637	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2638	223878615649	CER2 0603 X7R 16V 100N PM10 R

3202	212211805669	RST SM 0603 RC0603 10K PM5 R
3203	212211805669	RST SM 0603 RC0603 10K PM5 R
3204	212211805669	RST SM 0603 RC0603 10K PM5 R
3205	232270260223	RST SM 0603 RC21 22K PM5 R
3206	232270260101	RST SM 0603 RC21 100R PM5 R
3207	232270260101	RST SM 0603 RC21 100R PM5 R
3208	232270260102	RST SM 0603 RC21 1K PM5 R
3209	232270260104	RST SM 0603 RC21 100K PM5 R
3210	232270260101	RST SM 0603 RC21 100R PM5 R
3211	232270260101	RST SM 0603 RC21 100R PM5 R
3213	232270260102	RST SM 0603 RC21 1K PM5 R
3214	232270260472	RST SM 0603 RC21 4K7 PM5 R
3215	212211805669	RST SM 0603 RC0603 10K PM5 R
3216	232270260101	RST SM 0603 RC21 100R PM5 R
3217	232270260101	RST SM 0603 RC21 100R PM5 R
3219	212211805669	RST SM 0603 RC0603 10K PM5 R
3220	232270260223	RST SM 0603 RC21 22K PM5 R
3221	212211805669	RST SM 0603 RC0603 10K PM5 R
3222	212211805669	RST SM 0603 RC0603 10K PM5 R
3223	232270260101	RST SM 0603 RC21 100R PM5 R
3224	232270260101	RST SM 0603 RC21 100R PM5 R
3225	232270260101	RST SM 0603 RC21 100R PM5 R
3226	232270260101	RST SM 0603 RC21 100R PM5 R
3227	232270260222	RST SM 0603 RC21 2K2 PM5 R
3228	232270260222	RST SM 0603 RC21 2K2 PM5 R
3229	232270260104	RST SM 0603 RC21 100K PM5 R
3230	232270260102	RST SM 0603 RC21 1K PM5 R
3232	232270260101	RST SM 0603 RC21 100R PM5 R
3233	232270467509	RST SM 0603 RC22H 75R PM1 R
3234	232270260339	RST SM 0603 RC21 33R PM5 R
3235	232270467509	RST SM 0603 RC22H 75R PM1 R
3236	232270260101	RST SM 0603 RC21 100R PM5 R
3237	232270467509	RST SM 0603 RC22H 75R PM1 R
3238	232270296001	RST SM 0603 JUMP. MAX 0R05 R
3239	232270296001	RST SM 0603 JUMP. MAX 0R05 R
3240	232270296001	RST SM 0603 JUMP. MAX 0R05 R
3241	232270260472	RST SM 0603 RC21 4K7 PM5 R
3242	212211805669	RST SM 0603 RC0603 10K PM5 R
3245	232270260101	RST SM 0603 RC21 100R PM5 R
3246	232270260101	RST SM 0603 RC21 100R PM5 R
3301	212211805669	RST SM 0603 RC0603 10K PM5 R
3302	212211805669	RST SM 0603 RC0603 10K PM5 R
3316	212211805669	RST SM 0603 RC0603 10K PM5 R
3321	212211805669	RST SM 0603 RC0603 10K PM5 R
3322	212211805669	RST SM 0603 RC0603 10K PM5 R
3325	212211805669	RST SM 0603 RC0603 10K PM5 R
3326	232270260101	RST SM 0603 RC21 100R PM5 R
3327	232270260101	RST SM 0603 RC21 100R PM5 R
3401	232270260101	RST SM 0603 RC21 100R PM5 R
3402	232270260101	RST SM 0603 RC21 100R PM5 R
3404	232270260121	RST SM 0603 RC21 120R PM5 R
3405	232270260121	RST SM 0603 RC21 120R PM5 R
3406	232270260121	RST SM 0603 RC21 120R PM5 R

3408	232270461002	RST SM 0603 RC22H 1K PM1 R
3409	212211805639	RST SM 0603 RC0603 47R PM5 R
3410	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3411	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3412	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3413	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3414	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3415	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3416	212211805635	RST SM 0603 RC0603 10R PM5 R
3417	232270260101	RST SM 0603 RC21 100R PM5 R
3504	232270260102	RST SM 0603 RC21 1K PM5 R
3505	232270260222	RST SM 0603 RC21 2K2 PM5 R
3506	232270260222	RST SM 0603 RC21 2K2 PM5 R
3507	232270260222	RST SM 0603 RC21 2K2 PM5 R
3508	232270260222	RST SM 0603 RC21 2K2 PM5 R
3509	212211805647	RST SM 0603 RC0603 220R PM5 R
3510	212211805669	RST SM 0603 RC0603 10K PM5 R
3511	212211805647	RST SM 0603 RC0603 220R PM5 R
3512	212211805669	RST SM 0603 RC0603 10K PM5 R
3513	212211805669	RST SM 0603 RC0603 10K PM5 R
3514	212211805669	RST SM 0603 RC0603 10K PM5 R
3515	212211805669	RST SM 0603 RC0603 10K PM5 R
3516	212211805669	RST SM 0603 RC0603 10K PM5 R
3517	232270260104	RST SM 0603 RC21 100K PM5 R
3518	232270260101	RST SM 0603 RC21 100R PM5 R
3519	232270260473	RST SM 0603 RC21 47K PM5 R
3521	232270260101	RST SM 0603 RC21 100R PM5 R
3522	212211805669	RST SM 0603 RC0603 10K PM5 R
3523	212211805669	RST SM 0603 RC0603 10K PM5 R
3524	232270260473	RST SM 0603 RC21 47K PM5 R
3525	212211805669	RST SM 0603 RC0603 10K PM5 R
3526	232270260101	RST SM 0603 RC21 100R PM5 R
3527	212211805669	RST SM 0603 RC0603 10K PM5 R
3528	212211805669	RST SM 0603 RC0603 10K PM5 R
3529	212211805655	RST SM 0603 RC0603 820R PM5 R
3531	232270260222	RST SM 0603 RC21 2K2 PM5 R
3532	232270296001	RST SM 0603 JUMP. MAX 0R05 R
3601	232270463901	RST SM 0603 RC22H 390R PM1 R
3602	232270463901	RST SM 0603 RC22H 390R PM1 R
3603	232270461622	RST SM 0603 RC22H 1K62 PM1 R
3604	232270461622	RST SM 0603 RC22H 1K62 PM1 R
3605	212211805669	RST SM 0603 RC0603 10K PM5 R
3607	212211805639	RST SM 0603 RC0603 47R PM5 R
3608	212211805639	RST SM 0603 RC0603 47R PM5 R
3609	212211805639	RST SM 0603 RC0603 47R PM5 R
3610	212211805637	RST SM 0603 RC0603 22R PM5 R
3615	212211805669	RST SM 0603 RC0603 10K PM5 R
3616	212211805669	RST SM 0603 RC0603 10K PM5 R
3620	212211805669	RST SM 0603 RC0603 10K PM5 R
3621	212211805669	RST SM 0603 RC0603 10K PM5 R
3623	212211805669	RST SM 0603 RC0603 10K PM5 R
3627	232270260101	RST SM 0603 RC21 100R PM5 R
3628	232270260101	RST SM 0603 RC21 100R PM5 R
3629	212211805639	RST SM 0603 RC0603 47R PM5 R
3630	232270260101	RST SM 0603 RC21 100R PM5 R
3631	212211805669	RST SM 0603 RC0603 10K PM5 R
3632	212211805647	RST SM 0603 RC0603 220R PM5 R
3633	232270260101	RST SM 0603 RC21 100R PM5 R
3634	212211805669	RST SM 0603 RC0603 10K PM5 R
3637	212211805647	RST SM 0603 RC0603 220R PM5 R
3639	212211805669	RST SM 0603 RC0603 10K PM5 R
4511	232273091002	RST SM 0805 JUMP. MAX 0R05 R
5201	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5202	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5301	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5401	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5402	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5403	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5404	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5405	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5406	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5407	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5408	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5409	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5501	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5503	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5504	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5506	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5507	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5508	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5511	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5512	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5601	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5602	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5603	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5604	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5605	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5606	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5607	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5608	242254900451	IND FXD 1206 EMI 100MHZ 80R R
6220	933742280215	DIO SIG SM BAT54 (PHSE) R
6221	932205976685	DIO SIG SM LS4148 (VISH) R
6222	932205976685	DIO SIG SM LS4148 (VISH) R
6223	933742280215	DIO SIG SM BAT54 (PHSE) R
6601	932205042685	DIO SIG SM BAV99LG (ONSE) R
6602	932205042685	DIO SIG SM BAV99LG (ONSE) R
7203	932216972682	IC SM AT24C02N-10SC-2.7(ATME)L
7204	932216972682	IC SM AT24C02N-10SC-2.7(ATME)L
7211	935260739118	IC SM 74LVC14APW (PHSE) R
7301	313815864341	CPU IC ASSY(7301)
7301	823827715141	FLASH
7302	932218650682	IC AT24C16A-10PU-2.7 (ATME) L
7302	313815864351	EEPROM IC ASSY(7302)
7403	932220099685	IC SM LD1117AS18 (ST00) R
7404	932220818671	IC SM GM5321-BC (GEMI) Y
7405	932222076668	IC SM AME1117CCGTZ (AME0) R
7501	932217439685	TRA SIG SM BC857C (KEC0) R
7502	932217439685	TRA SIG SM BC857C (KEC0) R
7503	934036790115	TRA SIG SM PDTC114EK (PHSE) R
7504	932216638668	FET POW SM SI5441DC-E3 (VISH)R
7505	932217439685	TRA SIG SM BC857C (KEC0) R
7506	934036790115	TRA SIG SM PDTC114EK (PHSE) R
7507	934036790115	TRA SIG SM PDTC114EK (PHSE) R
7508	932216638668	FET POW SM SI5441DC-E3 (VISH)R
7509	932217439685	TRA SIG SM BC857C (KEC0) R
7601	932219359668	IC SM AME8815AEGT150Z (AME0) R
7602	932218246668	IC SM AME8815AEGT250Z (AME0) R
7603	823827716651	LIGHT FRAME IC
1052	313815859671	AUDIO ASSY
1056	313815859641	CONTROL ASSY
1901	313818873721	CON BM H 13P M 2.0 63373
1930	313816872091	CON BM H 3P (63363)
1931	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1932	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1932	313816872041	CON BM V 4P MM24264
1933	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1934	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1934	242202605588	SOC PHONE V 1P F 3.5 ST B
1935	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1936	242212803035	SWI TACT SM 1P 1POS SKQGAB R
2901	223858615636	CER2 0603 X7R 50V 10N PM10 R
2902	223858615636	CER2 0603 X7R 50V 10N PM10 R
2903	223858619812	CER2 0603 Y5V 50V 100N P8020 R
2904	223858615636	CER2 0603 X7R 50V 10N PM10 R
2905	223858615636	CER2 0603 X7R 50V 10N PM10 R
2906	223878615649	CER2 0603 X7R 16V 100N PM10 R
2907	223858615636	CER2 0603 X7R 50V 10N PM10 R
2908	223858615636	CER2 0603 X7R 50V 10N PM10 R
2931	225232523224	CER2 ML X7R 50V S 220N PM10 B
2931	223858615636	CER2 0603 X7R 50V 10N PM10 R
2932	225232523224	CER2 ML X7R 50V S 220N PM10 B
2932	223858615636	CER2 0603 X7R 50V 10N PM10 R
2933	223891119858	CER2 1206 Y5V 25V 470N P8020 R
2934	222291219876	CER2 1210 Y5V 25V 10U P8020 R
2935	202202000964	ELCAP SS-H 10V S 330U PM20 B
2936	223878615649	CER2 0603 X7R 16V 100N PM10 R
2937	223878615649	CER2 0603 X7R 16V 100N PM10 R
2938	202202000964	ELCAP SS-H 10V S 330U PM20 B
2939	223858615636	CER2 0603 X7R 50V 10N PM10 R
2940	223858615636	CER2 0603 X7R 50V 10N PM10 R
2941	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2942	222291019863	CER2 0805 Y5V 25V 1U P8020 R
2943	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2944	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2946	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2947	223886715101	CER1 0603 NP0 50V 100P PM5 R
2948	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2950	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2951	223878615649	CER2 0603 X7R 16V 100N PM10 R
2952	222291219876	CER2 1210 Y5V 25V 10U P8020 R
2953	223886715101	CER1 0603 NP0 50V 100P PM5 R
2954	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2955	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2956	223878615649	CER2 0603 X7R 16V 100N PM10 R
2957	223878615649	CER2 0603 X7R 16V 100N PM10 R
2958	223886715221	CER1 0603 NP0 50V 220P PM5 R
2959	222291019863	CER2 0805 Y5V 25V 1U P8020 R
2960	223878615649	CER2 0603 X7R 16V 100N PM10 R
2961	223878615649	CER2 0603 X7R 16V 100N PM10 R
2962	223858615636	CER2 0603 X7R 50V 10N PM10 R
2963	223858615636	CER2 0603 X7R 50V 10N PM10 R
2964	222291219876	CER2 1210 Y5V 25V 10U P8020 R
2965	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2966	223891119858	CER2 1206 Y5V 25V 470N P8020 R
2967	225232523224	CER2 ML X7R 50V S 220N PM10 B
2968	225232523224	CER2 ML X7R 50V S 220N PM10 B
2969	202203100258	ELCAP EB 16V S 470U PM20 B
2970	202203100261	ELCAP LZ 16V S 2200U PM20 B
2971	223886715101	CER1 0603 NP0 50V 100P PM5 R
2972	223886715101	CER1 0603 NP0 50V 100P PM5 R
2973	223886715101	CER1 0603 NP0 50V 100P PM5 R
2974	223886715101	CER1 0603 NP0 50V 100P PM5 R
3901	232270260223	RST SM 0603 RC21 22K PM5 R
3902	232270260222	RST SM 0603 RC21 2K2 PM5 R
3904	232270260222	RST SM 0603 RC21 2K2 PM5 R
3905	232270260105	RST SM 0603 RC21 1M PM5 R
3906	232270260223	RST SM 0603 RC21 22K PM5 R
3907	232270260222	RST SM 0603 RC21 2K2 PM5 R
3910	232270260222	RST SM 0603 RC21 2K2 PM5 R
3911	232270260105	RST SM 0603 RC21 1M PM5 R
3912	232270260105	RST SM 0603 RC21 1M PM5 R
3913	232270467503	RST SM 0603 RC22H 75K PM1 R
3914	232270260102	RST SM 0603 RC21 1K PM5 R
3915	232270296001	RST SM 0603 JUMP. MAX 0R05 R
3916	232270296001	RST SM 0603 JUMP. MAX 0R05 R
3931	232270260102	RST SM 0603 RC21 1K PM5 R
3931	232270260102	RST SM 0603 RC21 1K PM5 R
3932	213811201124	RST SM 0805 RC05 120K PM5 R
3932	212211805669	RST SM 0603 RC0603 10K PM5 R
3933	232270260102	RST SM 0603 RC21 1K PM5 R
3933	232270260473	RST SM 0603 RC21 47K PM5 R
3934	212211805669	RST SM 0603 RC0603 10K PM5 R
3934	232270260102	RST SM 0603 RC21 1K PM5 R
3935	212211805669	RST SM 0603 RC0603 10K PM5 R
3936	212211805669	RST SM 0603 RC0603 10K PM5 R
3936	232270260473	RST SM 0603 RC21 47K PM5 R
3937	212211805669	RST SM 0603 RC0603 10K PM5 R
3939	232270260223	RST SM 0603 RC21 22K PM5 R
3940	232270260512	RST SM 0603 RC21 5K1 PM5 R
3941	232270260223	RST SM 0603 RC21 22K PM5 R
3942	232270260512	RST SM 0603 RC21 5K1 PM5 R
3943	212211805669	RST SM 0603 RC0603 10K PM5 R
3944	212211805669	RST SM 0603 RC0603 10K PM5 R
3945	212211805673	RST SM 0603 RC0603 18K PM5 R
3946	232270260104	RST SM 0603 RC21 100K PM5 R
3948	232270461204	RST SM 0603 RC22H 120K PM1 R
3949	212211805682	RST SM 0603 RC0603 82K PM5 R
3950	212211805672	RST SM 0603 RC0603 15K PM5 R
3953	232270461003	RST SM 0603 RC22H 10K PM1 R
3956	212211805972	RST SM 1206 JUMP. MAX 0R05 R
3957	232270461003	RST SM 0603 RC22H 10K PM1 R
5901	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5902	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5903	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5931	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5932	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5933	242253600782	IND FXD TSL0808 S 33U PM10 B
5934	242253600782	IND FXD TSL0808 S 33U PM10 B
5935	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5936	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5937	242253600782	IND FXD TSL0808 S 33U PM10 B
5938	242253600782	IND FXD TSL0808 S 33U PM10 B
5939	313819871121	FIL MAINS 16MH 1.0A LS-PH03C-0
5940	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5941	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5942	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5943	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5944	242254900126	IND FXD 0805 EMI 100MHZ 120R R
6903	932218082685	LED VS SM KAA-3528YSGC (KIEL)R
6904	933137390215	DIO REG SM BZX84-C5V1 (PHSE) R
6905	932219408682	LED VS SM KA-3528MBC (KIEL) B
6932	932220628682	DIO REC SB140AL-5301 (VISH) B
7901	823827715951	TOUCH SENSOR IC
7902	932217440685	TRA SIG SM KRC102S (KEC0) R
7903	932217440685	TRA SIG SM KRC102S (KEC0) R
7931	932220946668	IC SM TPA6110A2DGN (TI00) R

7932	932220359668	IC SM TPA3002D2PHP (TI00) R
8901	313819873811	CBLE FAST/100/FAST AWG18
8902	313819873811	CBLE FAST/100/FAST AWG18
1053	313815862941	USB DOWN ASSY
1811	242202518948	CON V 5P M 2.50 64835 B
1812	242202519115	SOC USB H 4P F 2.0/2.5 5409 Y
1813	313819875971	CBLE FAST/60/FAST AWG18
4811	232273091002	RST SM 0805 JUMP. MAX 0R05 R
5811	242254900126	IND FXD 0805 EMI 100MHZ 120R R
1054	313815862951	USB UP ASSY
1065	313815863041	EAR PHONE PCB ASSY
1821	242202518955	SOC USB V 4P F 2.5 5411 Y
1822	242202518948	CON V 5P M 2.50 64835 B
1823	313819875971	CBLE FAST/60/FAST AWG18
1831	313819873281	CBLE-014 4/180/4-914 AWG28
1832	242202605662	SOC PHONE H 1P F 3.5 ST BK B
2821	223886715478	CER1 0603 NP0 50V 4P7 PM0P25 R
2822	223886715478	CER1 0603 NP0 50V 4P7 PM0P25 R
5821	242254900126	IND FXD 0805 EMI 100MHZ 120R R

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Mechanical Parts

0030	313815760401	BEZEL ASSY
0031	313815417001	BEZEL
0033	313815567471	LIGHTFRAME STICKER
0040	313815760411	BACK COVER ASSY
0041	313815417011	BACK COVER
0042	313815135811	HINGE-PLATE
0043	313815413491	OSD BUTTON
0044	313815413511	SKIN COVER
0050	313815757301	FOLDABLE BASE(S)
0097	313815413521	LOGO COVER(B)
0098	313815760421	SHIELDING ASSY
0100	313815137701	AC BRACKET
0101	313810440571	HOUSING COVER
0350	313815137711	SHIELDING
0351	313815321131	INSULATE PLATE
1057	313815864371	FRAME+WIRE ASSY

LCD PANEL

1050	823827718251	LCD LM170E01-TLA8

Packing

0450	313815640901	CARTON
0451	313815638251	CUSHION-R
0452	313815638261	CUSHION-L
0453	313815621491	P.E. BAG

PCB ASSY

1051	313815863031	SCALER PCB ASSY(1SC)
1052	313815859651	AUDIO ASSY
1053	313815862941	USB DOWN ASSY
1054	313815862951	USB UP ASSY
1055	823827717131	LIPS(EADP-43AF A)(POWER)
1056	313815859641	CONTROL ASSY
1065	313815863041	EAR PHONE PCB ASSY

Accessory

0602	313811708651	E-D.F.U.
1058	313815862911	SPEAKER BOX ASSY
1059	313818875051	SPEAKER CABLE(BLACK)
1060	313818877821	CORD SUB-D 15/1M8/SUB-D 15 M/M
1061	313812874931	MAINSCORD
1062	313819871401	CBLE-030 30/135/30-012 AWG28
1063	313819872531	CORD USB A/1M8/USB B BK
1070	313819875361	LSP BOX 16R 2W-L(PS-010017B)
1071	313819875371	LSP BOX 16R 2W-L(PS-010017C)
8061	313819875941	CBLE-023 13/215/12+2 AWG28

Miscellanea

0291	313815567551	LABEL-CPU
0295	313815567561	LABEL-EEPROM(L)
0615	313811708721	HEX CODE OF F/W(NO MATL REQ)
1201	242203300521	SOC DVI H 24P F 1.91DVI-D Y
1203	242202518065	SOC SUBD H 15P F BU 900 Y
1302	243803100435	SOC IC V 8P F 2.54 DIL L
1410	243854300086	RES XTL SM 14M318 18P HC49/S R
1502	242202518824	CON V 11P M 2.00 63391 B
1503	242202518089	CON V 12P M 2.00 63392 B
1508	242202518814	CON V 2P M 2.00 63382 B
1603	242202505572	CON H 30P M 1.25 SM 60952 R
4444	313810610477	CD ROM - SERVICE MANUAL
4444	313810610478	SERVICE MANUAL
8062	313819875961	CBLE-385 5/150/5-385 AWG22

PCB ASSY

1051	313815863031	SCALER PCB ASSY(1SC)

2209	223878615649	CER2 0603 X7R 16V 100N PM10 R
2211	223886715331	CER1 0603 NP0 50V 330P PM5 R
2212	223886715331	CER1 0603 NP0 50V 330P PM5 R
2214	223878615649	CER2 0603 X7R 16V 100N PM10 R
2216	223886715331	CER1 0603 NP0 50V 330P PM5 R
2217	223886715331	CER1 0603 NP0 50V 330P PM5 R
2218	223886715339	CER1 0603 NP0 50V 33P PM5 R
2219	223886715221	CER1 0603 NP0 50V 220P PM5 R
2220	223878615649	CER2 0603 X7R 16V 100N PM10 R
2221	223878615649	CER2 0603 X7R 16V 100N PM10 R
2225	223858615636	CER2 0603 X7R 50V 10N PM10 R
2227	223858615636	CER2 0603 X7R 50V 10N PM10 R
2229	223858615636	CER2 0603 X7R 50V 10N PM10 R
2231	223858615636	CER2 0603 X7R 50V 10N PM10 R
2233	223878615649	CER2 0603 X7R 16V 100N PM10 R
2234	223878615649	CER2 0603 X7R 16V 100N PM10 R
2235	223878615649	CER2 0603 X7R 16V 100N PM10 R
2301	223878615649	CER2 0603 X7R 16V 100N PM10 R
2302	223878615649	CER2 0603 X7R 16V 100N PM10 R
2401	202002191778	ELCAP SM RVJ 16V 100U PM20 R
2402	202203100182	ELCAP SM RVS 25V 10U PM20 R
2403	223878615649	CER2 0603 X7R 16V 100N PM10 R
2404	223878615649	CER2 0603 X7R 16V 100N PM10 R
2405	223878615649	CER2 0603 X7R 16V 100N PM10 R
2406	223878615649	CER2 0603 X7R 16V 100N PM10 R
2407	223878615649	CER2 0603 X7R 16V 100N PM10 R
2408	202203100182	ELCAP SM RVS 25V 10U PM20 R
2409	223878615649	CER2 0603 X7R 16V 100N PM10 R
2410	223878615649	CER2 0603 X7R 16V 100N PM10 R
2411	223878615649	CER2 0603 X7R 16V 100N PM10 R
2412	223878615649	CER2 0603 X7R 16V 100N PM10 R
2413	223878615649	CER2 0603 X7R 16V 100N PM10 R
2414	223878615649	CER2 0603 X7R 16V 100N PM10 R
2415	223878615649	CER2 0603 X7R 16V 100N PM10 R
2416	223878615649	CER2 0603 X7R 16V 100N PM10 R
2417	223878615649	CER2 0603 X7R 16V 100N PM10 R
2418	202202000789	ELCAP SM LV 16V 10U PM20 R
2419	223878615649	CER2 0603 X7R 16V 100N PM10 R
2420	202202000789	ELCAP SM LV 16V 10U PM20 R
2421	223878615649	CER2 0603 X7R 16V 100N PM10 R
2422	202203100182	ELCAP SM RVS 25V 10U PM20 R
2423	223878615649	CER2 0603 X7R 16V 100N PM10 R
2424	223878615649	CER2 0603 X7R 16V 100N PM10 R
2425	223878615649	CER2 0603 X7R 16V 100N PM10 R
2426	223878615649	CER2 0603 X7R 16V 100N PM10 R
2427	223878615649	CER2 0603 X7R 16V 100N PM10 R
2428	202203100182	ELCAP SM RVS 25V 10U PM20 R
2429	202203100182	ELCAP SM RVS 25V 10U PM20 R
2430	202203100182	ELCAP SM RVS 25V 10U PM20 R
2431	223878615649	CER2 0603 X7R 16V 100N PM10 R
2432	223878615649	CER2 0603 X7R 16V 100N PM10 R
2433	223878615649	CER2 0603 X7R 16V 100N PM10 R
2434	223878615649	CER2 0603 X7R 16V 100N PM10 R
2435	202203100182	ELCAP SM RVS 25V 10U PM20 R
2436	223878615649	CER2 0603 X7R 16V 100N PM10 R
2437	202203100182	ELCAP SM RVS 25V 10U PM20 R
2438	223824619863	CER2 0603 Y5V 10V 1U P8020 R
2439	202203100182	ELCAP SM RVS 25V 10U PM20 R
2440	223878615649	CER2 0603 X7R 16V 100N PM10 R
2441	223878615649	CER2 0603 X7R 16V 100N PM10 R
2442	223878615649	CER2 0603 X7R 16V 100N PM10 R
2443	223878615649	CER2 0603 X7R 16V 100N PM10 R
2444	223878615649	CER2 0603 X7R 16V 100N PM10 R
2445	223878615649	CER2 0603 X7R 16V 100N PM10 R
2446	223878615649	CER2 0603 X7R 16V 100N PM10 R
2450	223886715478	CER1 0603 NP0 50V 4P7 PM0P25 R
2451	223886715478	CER1 0603 NP0 50V 4P7 PM0P25 R
2453	223858615632	CER2 0603 X7R 50V 4N7 PM10 R
2454	223858615636	CER2 0603 X7R 50V 10N PM10 R
2455	223858615636	CER2 0603 X7R 50V 10N PM10 R
2456	223858615636	CER2 0603 X7R 50V 10N PM10 R
2457	223886715109	CER1 0603 NP0 50V 10P PM5 R
2460	223878615649	CER2 0603 X7R 16V 100N PM10 R
2461	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2462	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2501	223878615649	CER2 0603 X7R 16V 100N PM10 R
2502	223878615649	CER2 0603 X7R 16V 100N PM10 R
2503	202203100206	ELCAP SM HV 25V 47U PM20 R
2507	223878615649	CER2 0603 X7R 16V 100N PM10 R
2508	223878615649	CER2 0603 X7R 16V 100N PM10 R
2509	202203100206	ELCAP SM HV 25V 47U PM20 R
2510	223878615649	CER2 0603 X7R 16V 100N PM10 R
2511	223886715101	CER1 0603 NP0 50V 100P PM5 R
2512	223878615649	CER2 0603 X7R 16V 100N PM10 R
2514	223878615649	CER2 0603 X7R 16V 100N PM10 R
2515	223878615649	CER2 0603 X7R 16V 100N PM10 R
2516	223878615649	CER2 0603 X7R 16V 100N PM10 R
2517	223878615649	CER2 0603 X7R 16V 100N PM10 R
2518	223878615649	CER2 0603 X7R 16V 100N PM10 R
2519	223878615649	CER2 0603 X7R 16V 100N PM10 R
2520	223878615649	CER2 0603 X7R 16V 100N PM10 R
2521	202203100206	ELCAP SM HV 25V 47U PM20 R
2522	223878615649	CER2 0603 X7R 16V 100N PM10 R
2523	223878615649	CER2 0603 X7R 16V 100N PM10 R
2524	223858615636	CER2 0603 X7R 50V 10N PM10 R
2525	223878615649	CER2 0603 X7R 16V 100N PM10 R
2601	223878615649	CER2 0603 X7R 16V 100N PM10 R
2602	223878615649	CER2 0603 X7R 16V 100N PM10 R
2603	223878615649	CER2 0603 X7R 16V 100N PM10 R
2604	223878615649	CER2 0603 X7R 16V 100N PM10 R
2605	223878615649	CER2 0603 X7R 16V 100N PM10 R
2606	223878615649	CER2 0603 X7R 16V 100N PM10 R
2607	223878615649	CER2 0603 X7R 16V 100N PM10 R
2608	223878615649	CER2 0603 X7R 16V 100N PM10 R
2609	202203100182	ELCAP SM RVS 25V 10U PM20 R
2610	223878615649	CER2 0603 X7R 16V 100N PM10 R
2611	223878615649	CER2 0603 X7R 16V 100N PM10 R
2612	223878615649	CER2 0603 X7R 16V 100N PM10 R
2613	223878615649	CER2 0603 X7R 16V 100N PM10 R
2614	202203100182	ELCAP SM RVS 25V 10U PM20 R
2615	202203100182	ELCAP SM RVS 25V 10U PM20 R
2616	202203100182	ELCAP SM RVS 25V 10U PM20 R
2617	223878615649	CER2 0603 X7R 16V 100N PM10 R
2618	202203100182	ELCAP SM RVS 25V 10U PM20 R
2619	223878615649	CER2 0603 X7R 16V 100N PM10 R
2620	223878615649	CER2 0603 X7R 16V 100N PM10 R
2621	223878615649	CER2 0603 X7R 16V 100N PM10 R
2622	223878615649	CER2 0603 X7R 16V 100N PM10 R
2623	223878615649	CER2 0603 X7R 16V 100N PM10 R
2624	223878615649	CER2 0603 X7R 16V 100N PM10 R
2625	202203100182	ELCAP SM RVS 25V 10U PM20 R
2626	223878615649	CER2 0603 X7R 16V 100N PM10 R
2627	223878615649	CER2 0603 X7R 16V 100N PM10 R
2628	223878615649	CER2 0603 X7R 16V 100N PM10 R
2629	223878615649	CER2 0603 X7R 16V 100N PM10 R
2630	202203100182	ELCAP SM RVS 25V 10U PM20 R
2632	223878615649	CER2 0603 X7R 16V 100N PM10 R
2633	202203100182	ELCAP SM RVS 25V 10U PM20 R
2634	223878615649	CER2 0603 X7R 16V 100N PM10 R
2636	223878615649	CER2 0603 X7R 16V 100N PM10 R
2637	222224119876	CER2 1206 Y5V 10V 10U P8020 R
2638	223878615649	CER2 0603 X7R 16V 100N PM10 R

3202	212211805669	RST SM 0603 RC0603 10K PM5 R
3203	212211805669	RST SM 0603 RC0603 10K PM5 R
3204	212211805669	RST SM 0603 RC0603 10K PM5 R
3205	232270260223	RST SM 0603 RC21 22K PM5 R
3206	232270260101	RST SM 0603 RC21 100R PM5 R
3207	232270260101	RST SM 0603 RC21 100R PM5 R
3208	232270260102	RST SM 0603 RC21 1K PM5 R
3209	232270260104	RST SM 0603 RC21 100K PM5 R
3210	232270260101	RST SM 0603 RC21 100R PM5 R
3211	232270260101	RST SM 0603 RC21 100R PM5 R
3213	232270260102	RST SM 0603 RC21 1K PM5 R
3214	232270260472	RST SM 0603 RC21 4K7 PM5 R
3215	212211805669	RST SM 0603 RC0603 10K PM5 R
3216	232270260101	RST SM 0603 RC21 100R PM5 R
3217	232270260101	RST SM 0603 RC21 100R PM5 R
3219	212211805669	RST SM 0603 RC0603 10K PM5 R
3220	232270260223	RST SM 0603 RC21 22K PM5 R
3221	212211805669	RST SM 0603 RC0603 10K PM5 R
3222	212211805669	RST SM 0603 RC0603 10K PM5 R
3223	232270260101	RST SM 0603 RC21 100R PM5 R
3224	232270260101	RST SM 0603 RC21 100R PM5 R
3225	232270260101	RST SM 0603 RC21 100R PM5 R
3226	232270260101	RST SM 0603 RC21 100R PM5 R
3227	232270260222	RST SM 0603 RC21 2K2 PM5 R
3228	232270260222	RST SM 0603 RC21 2K2 PM5 R
3229	232270260104	RST SM 0603 RC21 100K PM5 R
3230	232270260102	RST SM 0603 RC21 1K PM5 R
3232	232270260101	RST SM 0603 RC21 100R PM5 R
3233	232270467509	RST SM 0603 RC22H 75R PM1 R
3234	232270260339	RST SM 0603 RC21 33R PM5 R
3235	232270467509	RST SM 0603 RC22H 75R PM1 R
3236	232270260101	RST SM 0603 RC21 100R PM5 R
3237	232270467509	RST SM 0603 RC22H 75R PM1 R
3238	232270296001	RST SM 0603 JUMP. MAX 0R05 R
3239	232270296001	RST SM 0603 JUMP. MAX 0R05 R
3240	232270296001	RST SM 0603 JUMP. MAX 0R05 R
3241	232270260472	RST SM 0603 RC21 4K7 PM5 R
3242	212211805669	RST SM 0603 RC0603 10K PM5 R
3245	232270260101	RST SM 0603 RC21 100R PM5 R
3246	232270260101	RST SM 0603 RC21 100R PM5 R
3301	212211805669	RST SM 0603 RC0603 10K PM5 R
3302	212211805669	RST SM 0603 RC0603 10K PM5 R
3316	212211805669	RST SM 0603 RC0603 10K PM5 R
3321	212211805669	RST SM 0603 RC0603 10K PM5 R
3322	212211805669	RST SM 0603 RC0603 10K PM5 R
3325	212211805669	RST SM 0603 RC0603 10K PM5 R
3326	232270260101	RST SM 0603 RC21 100R PM5 R
3327	232270260101	RST SM 0603 RC21 100R PM5 R
3401	232270260101	RST SM 0603 RC21 100R PM5 R
3402	232270260101	RST SM 0603 RC21 100R PM5 R
3404	232270260121	RST SM 0603 RC21 120R PM5 R
3405	232270260121	RST SM 0603 RC21 120R PM5 R
3406	232270260121	RST SM 0603 RC21 120R PM5 R
3408	232270461002	RST SM 0603 RC22H 1K PM1 R
3409	212211805639	RST SM 0603 RC0603 47R PM5 R
3410	235003510479	RST NETW SM ARV24 4X 47R PM5 R

3411	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3412	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3413	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3414	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3415	235003510479	RST NETW SM ARV24 4X 47R PM5 R
3416	212211805635	RST SM 0603 RC0603 10R PM5 R
3417	232270260101	RST SM 0603 RC21 100R PM5 R
3504	232270260102	RST SM 0603 RC21 1K PM5 R
3505	232270260222	RST SM 0603 RC21 2K2 PM5 R
3506	232270260222	RST SM 0603 RC21 2K2 PM5 R
3507	232270260222	RST SM 0603 RC21 2K2 PM5 R
3508	232270260222	RST SM 0603 RC21 2K2 PM5 R
3509	212211805647	RST SM 0603 RC0603 220R PM5 R
3510	212211805669	RST SM 0603 RC0603 10K PM5 R
3511	212211805647	RST SM 0603 RC0603 220R PM5 R
3512	212211805669	RST SM 0603 RC0603 10K PM5 R
3513	212211805669	RST SM 0603 RC0603 10K PM5 R
3514	212211805669	RST SM 0603 RC0603 10K PM5 R
3515	212211805669	RST SM 0603 RC0603 10K PM5 R
3516	212211805669	RST SM 0603 RC0603 10K PM5 R
3517	232270260104	RST SM 0603 RC21 100K PM5 R
3518	232270260101	RST SM 0603 RC21 100R PM5 R
3519	232270260473	RST SM 0603 RC21 47K PM5 R
3521	232270260101	RST SM 0603 RC21 100R PM5 R
3522	212211805669	RST SM 0603 RC0603 10K PM5 R
3523	212211805669	RST SM 0603 RC0603 10K PM5 R
3524	232270260473	RST SM 0603 RC21 47K PM5 R
3525	212211805669	RST SM 0603 RC0603 10K PM5 R
3526	232270260101	RST SM 0603 RC21 100R PM5 R
3527	212211805669	RST SM 0603 RC0603 10K PM5 R
3528	212211805669	RST SM 0603 RC0603 10K PM5 R
3529	212211805655	RST SM 0603 RC0603 820R PM5 R
3531	232270260222	RST SM 0603 RC21 2K2 PM5 R
3532	232270296001	RST SM 0603 JUMP. MAX 0R05 R
3601	232270463901	RST SM 0603 RC22H 390R PM1 R
3602	232270463901	RST SM 0603 RC22H 390R PM1 R
3603	232270461622	RST SM 0603 RC22H 1K62 PM1 R
3604	232270461622	RST SM 0603 RC22H 1K62 PM1 R
3605	212211805669	RST SM 0603 RC0603 10K PM5 R
3607	212211805639	RST SM 0603 RC0603 47R PM5 R
3608	212211805639	RST SM 0603 RC0603 47R PM5 R
3609	212211805639	RST SM 0603 RC0603 47R PM5 R
3610	212211805637	RST SM 0603 RC0603 22R PM5 R
3615	212211805669	RST SM 0603 RC0603 10K PM5 R
3616	212211805669	RST SM 0603 RC0603 10K PM5 R
3620	212211805669	RST SM 0603 RC0603 10K PM5 R
3621	212211805669	RST SM 0603 RC0603 10K PM5 R
3623	212211805669	RST SM 0603 RC0603 10K PM5 R
3627	232270260101	RST SM 0603 RC21 100R PM5 R
3628	232270260101	RST SM 0603 RC21 100R PM5 R
3629	212211805639	RST SM 0603 RC0603 47R PM5 R
3630	232270260101	RST SM 0603 RC21 100R PM5 R
3631	212211805669	RST SM 0603 RC0603 10K PM5 R
3632	212211805647	RST SM 0603 RC0603 220R PM5 R
3633	232270260101	RST SM 0603 RC21 100R PM5 R
3634	212211805669	RST SM 0603 RC0603 10K PM5 R
3637	212211805647	RST SM 0603 RC0603 220R PM5 R
3639	212211805669	RST SM 0603 RC0603 10K PM5 R
4511	232273091002	RST SM 0805 JUMP. MAX 0R05 R

5201	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5202	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5301	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5401	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5402	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5403	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5404	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5405	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5406	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5407	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5408	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5409	242254945582	IND FXD 0805 EMI 100MHZ 300R R
5501	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5503	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5504	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5506	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5507	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5508	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5511	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5512	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5601	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5602	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5603	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5604	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5605	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5606	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5607	242254900451	IND FXD 1206 EMI 100MHZ 80R R
5608	242254900451	IND FXD 1206 EMI 100MHZ 80R R

6220	933742280215	DIO SIG SM BAT54 (PHSE) R
6221	932205976685	DIO SIG SM LS4148 (VISH) R
6222	932205976685	DIO SIG SM LS4148 (VISH) R
6223	933742280215	DIO SIG SM BAT54 (PHSE) R
6601	932205042685	DIO SIG SM BAV99LG (ONSE) R
6602	932205042685	DIO SIG SM BAV99LG (ONSE) R

7203	932216972682	IC SM AT24C02N-10SC-2.7(ATME)L
7204	932216972682	IC SM AT24C02N-10SC-2.7(ATME)L
7211	932217126668	IC SM 74LCX14T (ST00) R
7301	313815863051	CPU IC ASSY 7301
7301	823827715141	FLASH
7302	313815863061	EEPROM IC ASSY 7302
7302	932218650682	IC AT24C16A-10PU-2.7 (ATME) L
7403	932220099685	IC SM LD1117AS18 (ST00) R
7404	932220818671	IC SM GM5321-BC (GEMI) Y
7405	932222076668	IC SM AME1117CCGTZ (AME0) R
7501	932217439685	TRA SIG SM BC857C (KEC0) R
7502	932217439685	TRA SIG SM BC857C (KEC0) R
7503	932209265685	TRA SIG SM MUN2211JG (ONSE) R
7504	932216638668	FET POW SM SI5441DC-E3 (VISH)R
7505	932217439685	TRA SIG SM BC857C (KEC0) R
7506	932209265685	TRA SIG SM MUN2211JG (ONSE) R
7507	932209265685	TRA SIG SM MUN2211JG (ONSE) R
7508	932216638668	FET POW SM SI5441DC-E3 (VISH)R
7509	932217439685	TRA SIG SM BC857C (KEC0) R
7601	932219359668	IC SM AME8815AEGT150Z (AME0) R
7602	932218246668	IC SM AME8815AEGT250Z (AME0) R
7603	823827716651	LIGHT FRAME IC

1052	313815859651	AUDIO ASSY

1905	242202605588	SOC PHONE V 1P F 3.5 ST B
1941	313818873721	CON BM H 13P M 2.0 63373
2901	202203100261	ELCAP LZ 16V S 2200U PM20 B
2902	202203100258	ELCAP EB 16V S 470U PM20 B
2903	222278015663	CER2 0805 X7R 16V 1U PM10 R
2905	222278015663	CER2 0805 X7R 16V 1U PM10 R
2906	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2908	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2909	223886715101	CER1 0603 NP0 50V 100P PM5 R
2910	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2911	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2912	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2914	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2915	223886715101	CER1 0603 NP0 50V 100P PM5 R
2916	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2917	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2918	202202000964	ELCAP SS-H 10V S 330U PM20 B
2919	223886715101	CER1 0603 NP0 50V 100P PM5 R
2920	223886715101	CER1 0603 NP0 50V 100P PM5 R
2921	223886715101	CER1 0603 NP0 50V 100P PM5 R
2922	223878615649	CER2 0603 X7R 16V 100N PM10 R
2923	223886715101	CER1 0603 NP0 50V 100P PM5 R
2924	223878615649	CER2 0603 X7R 16V 100N PM10 R
2925	222278015663	CER2 0805 X7R 16V 1U PM10 R
2926	223878615645	CER2 0603 X7R 16V 47N PM10 R
2927	223824619858	CER2 0603 Y5V 10V 470N P8020 R
2929	222278015663	CER2 0805 X7R 16V 1U PM10 R
2930	202202000964	ELCAP SS-H 10V S 330U PM20 B
2941	223858615636	CER2 0603 X7R 50V 10N PM10 R
2942	223858615636	CER2 0603 X7R 50V 10N PM10 R
2943	223858615636	CER2 0603 X7R 50V 10N PM10 R
2944	223858615636	CER2 0603 X7R 50V 10N PM10 R
2945	223878615649	CER2 0603 X7R 16V 100N PM10 R
2946	223858619812	CER2 0603 Y5V 50V 100N P8020 R
2947	223858615636	CER2 0603 X7R 50V 10N PM10 R
2948	223858615636	CER2 0603 X7R 50V 10N PM10 R
3903	212211805972	RST SM 1206 JUMP. MAX 0R05 R
3905	212211805972	RST SM 1206 JUMP. MAX 0R05 R
3908	212211805676	RST SM 0603 RC0603 33K PM5 R
3909	212211805681	RST SM 0603 RC0603 68K PM5 R
3914	212211805673	RST SM 0603 RC0603 18K PM5 R
3915	232270260512	RST SM 0603 RC21 5K1 PM5 R
3916	212211805673	RST SM 0603 RC0603 18K PM5 R
3917	232270260512	RST SM 0603 RC21 5K1 PM5 R
3921	232270260104	RST SM 0603 RC21 100K PM5 R
3922	232270260104	RST SM 0603 RC21 100K PM5 R
3923	212211805669	RST SM 0603 RC0603 10K PM5 R
3924	212211805669	RST SM 0603 RC0603 10K PM5 R
3926	212211805669	RST SM 0603 RC0603 10K PM5 R
3927	212211805682	RST SM 0603 RC0603 82K PM5 R
3928	212211805673	RST SM 0603 RC0603 18K PM5 R
3929	232270260102	RST SM 0603 RC21 1K PM5 R
3930	232270260102	RST SM 0603 RC21 1K PM5 R
3941	232270260222	RST SM 0603 RC21 2K2 PM5 R
3942	232270260223	RST SM 0603 RC21 22K PM5 R
3943	232270260222	RST SM 0603 RC21 2K2 PM5 R
3944	232270260223	RST SM 0603 RC21 22K PM5 R
3945	232270260222	RST SM 0603 RC21 2K2 PM5 R
3946	232270260105	RST SM 0603 RC21 1M PM5 R
3947	232270260222	RST SM 0603 RC21 2K2 PM5 R
3948	232270260105	RST SM 0603 RC21 1M PM5 R
3949	232270467503	RST SM 0603 RC22H 75K PM1 R
3950	232270260102	RST SM 0603 RC21 1K PM5 R
3951	232270260105	RST SM 0603 RC21 1M PM5 R
3955	232270296001	RST SM 0603 JUMP. MAX 0R05 R
3956	232270296001	RST SM 0603 JUMP. MAX 0R05 R
5901	313819871121	FIL MAINS 16MH 1.0A LS-PH03C-0
5902	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5903	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5904	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5905	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5906	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5907	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5908	242254944197	IND FXD 0805 EMI 100MHZ 220R R
5929	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5930	242254900064	IND FXD 0805 EMI 100MHZ 220R R
5941	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5942	242254900126	IND FXD 0805 EMI 100MHZ 120R R
5943	242254900126	IND FXD 0805 EMI 100MHZ 120R R
6901	932220628682	DIO REC SB140AL-5301 (VISH) B
6941	932219408682	LED VS SM KA-3528MBC (KIEL) B
6942	932218082685	LED VS SM KAA-3528YSGC (KIEL)R
6945	933137390215	DIO REG SM BZX84-C5V1 (PHSE) R
7901	932219970668	IC SM TPA6030A4PWP (TI00) R
7941	823827715951	TOUCH SENSOR IC
7942	932209265685	TRA SIG SM MUN2211JG (ONSE) R
7943	932209265685	TRA SIG SM MUN2211JG (ONSE) R
8901	313819873811	CBLE FAST/100/FAST AWG18
8902	313819873811	CBLE FAST/100/FAST AWG18

1053	313815862941	USB DOWN ASSY

4811	232273091002	RST SM 0805 JUMP. MAX 0R05 R
5811	242254900126	IND FXD 0805 EMI 100MHZ 120R R
1811	242202518948	CON V 5P M 2.50 64835 B
1812	242202519115	SOC USB H 4P F 2.0/2.5 5409 Y
1813	313819875971	CBLE FAST/60/FAST AWG18

1054	313815862951	USB UP ASSY

1821	242202518955	SOC USB V 4P F 2.5 5411 Y
1822	242202518948	CON V 5P M 2.50 64835 B
1823	313819875971	CBLE FAST/60/FAST AWG18
2821	223886715478	CER1 0603 NP0 50V 4P7 PM0P25 R
2822	223886715478	CER1 0603 NP0 50V 4P7 PM0P25 R
5821	242254900126	IND FXD 0805 EMI 100MHZ 120R R

1056	313815859641	CONTROL ASSY

1930	313816872091	CON BM H 3P (63363)
1931	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1932	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1933	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1934	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1935	242212803035	SWI TACT SM 1P 1POS SKQGAB R
1936	242212803035	SWI TACT SM 1P 1POS SKQGAB R
2931	223858615636	CER2 0603 X7R 50V 10N PM10 R
2932	223858615636	CER2 0603 X7R 50V 10N PM10 R
3931	232270260102	RST SM 0603 RC21 1K PM5 R
3932	212211805669	RST SM 0603 RC0603 10K PM5 R
3933	232270260473	RST SM 0603 RC21 47K PM5 R
3934	232270260102	RST SM 0603 RC21 1K PM5 R
3935	212211805669	RST SM 0603 RC0603 10K PM5 R
3936	232270260473	RST SM 0603 RC21 47K PM5 R

1065	313815863041	EAR PHONE PCB ASSY

1831	313819873281	CBLE-014 4/180/4-914 AWG28
1832	242202605662	SOC PHONE H 1P F 3.5 ST BK B

Repair Tips

Go to cover page

0. Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

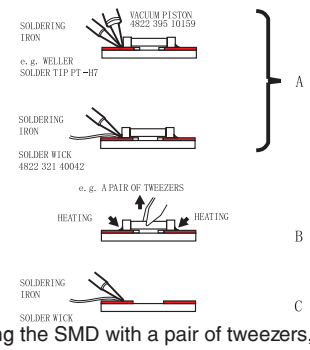
1.1 General cautions on handling and storage

- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A)

Fig. 1 DISMOUNTING



While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1 B).

- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

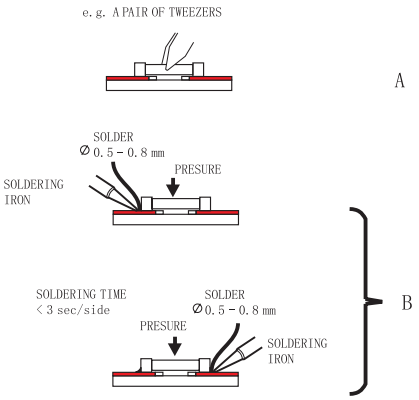
1.3 Caution on removal

- When handling the soldering.iron. use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 C).
- The chip, once removed, must never be reused.

1.4 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig.2A).
- Next complete the soldering of the terminals of the component (see Fiq. 2B).

Fig. 2 MOUNTING



2. Caution when attaching SMDs

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

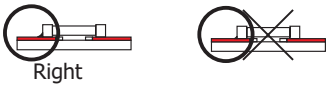
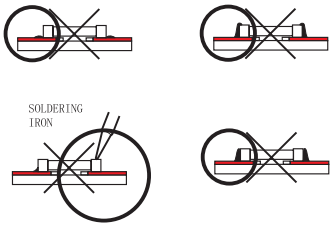


Fig.3 Examples



3. Lead-free product identification
You can identify lead-free product by Philips-lead-free logo on PCB.

4. Lead-free product repair instruction
4.1 Use only lead-free Solder Alloy 0622 149 00106(1.2mm SAC305) or 0622 149 00108(1.0mm SAC305).
Remark: For lead free soldering material, please visit www.alphametals.com website for details. This is recommended by Philips.

4.2 Use only adequate solder tools applicable for lead-free soldering-tin. The solder tool must be able to reach at least a solder-temperature of 400℃, to stabilize the adjusted temperature at the solder-tip and to exchange solder-tips for different applications.
Small Passives/Actives to be removed with thermal tweezers
Automated system for IC and BGA repair (Microscope, Camera, Beam split optics, Computer, Programmer, Heat controllers, Vacuum system, Laser pointer)
Solder Hand-Tool (Adjustable in temperature height, Temperature shall be held constant, Flexible tips)

4.3 Adjust your solder tool so that a temperature around 360℃-380℃ is reached and stabilized at the solder joint. Heating-time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400℃ otherwise wear-out of tips will rise drastically and flux-fluid will be destroyed.

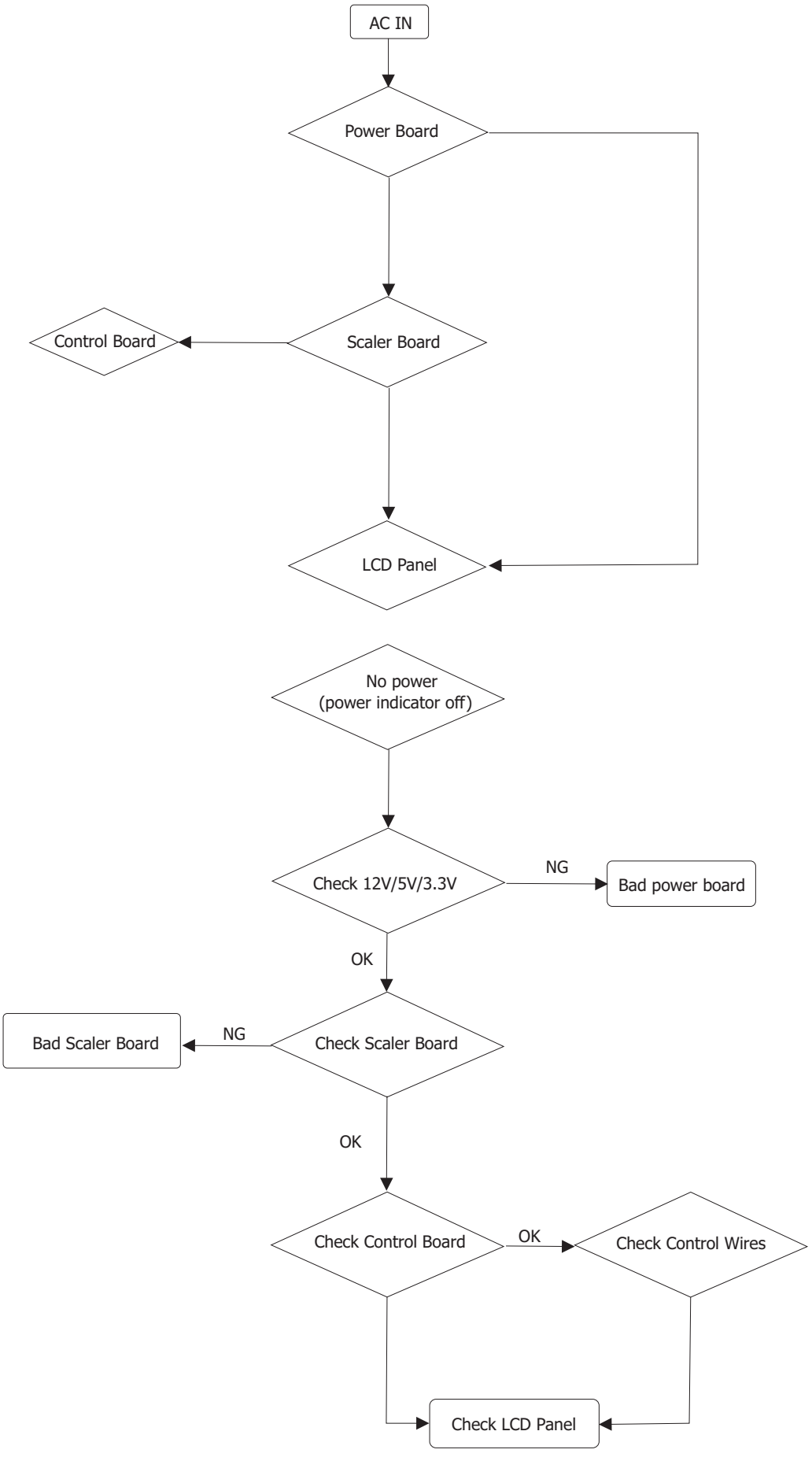
Corrosion of Tool-Spikes can be avoided when using SAC305 and a temperature of less than 400℃.

4.4 Mix of lead-free solder-tin/parts with leaded soldering-tin/parts is possible but not recommended. If not to avoid clean carefully the solder-joint from old tin and re-solder with new tin.

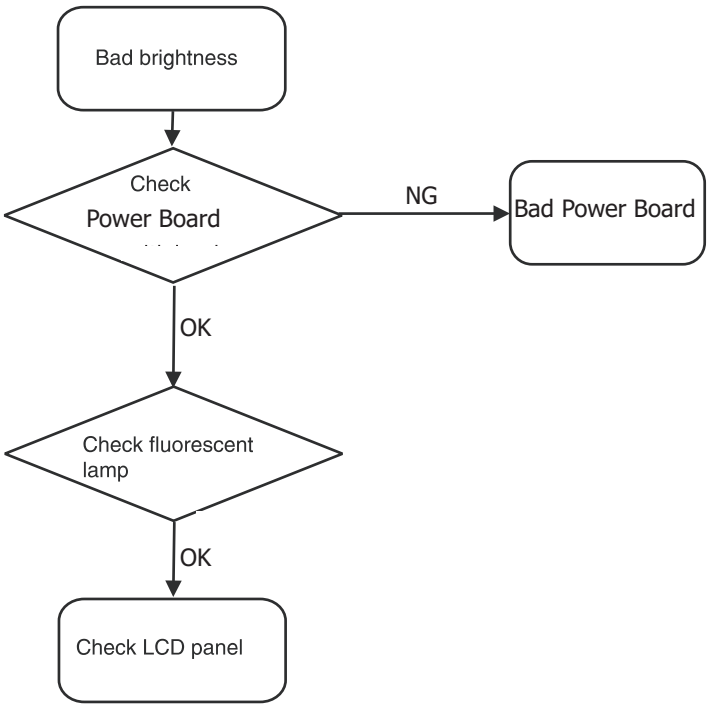
4.5 Use only original spare-parts listed in the Service-Manuals. Standard-material (consumables) can also be purchased at external companies.
4.6 Special information for lead-free BGA-ICs: this ICs will be delivered in so-called dry-packaging to protect the IC against moisture and with lead-free logo on it. This packaging may only be opened shortly before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-)pressure. If the packaging was opened before usage the IC has to be heated up for some hours (around 90℃) for drying (Take attention for ESD-protection!)

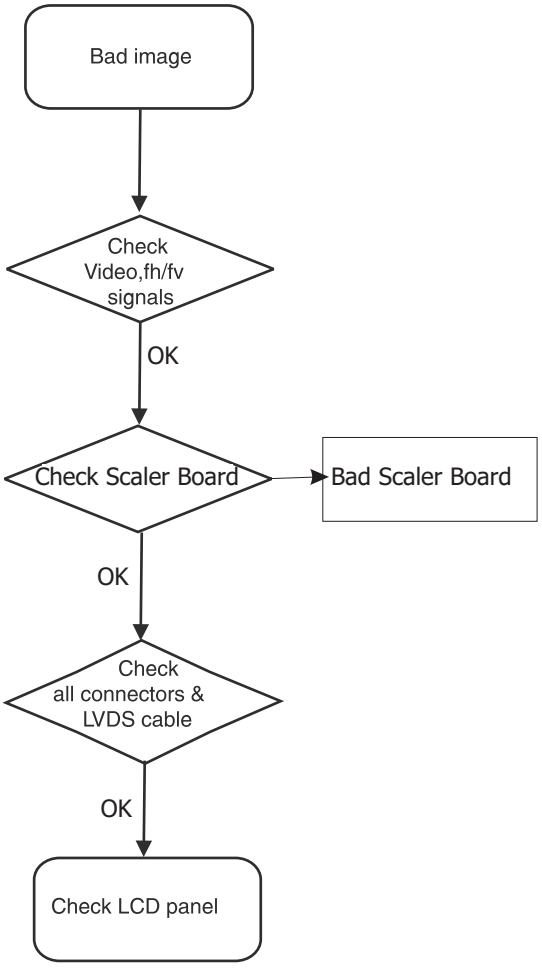
5. Rework on BGA (Ball Grid Array) ICs
General
Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.
Device Removal
As is the case with any component that, it is essential when removing an (LF)BGA, the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the chance of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.
Area Preparation
When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent. After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the(LF)BGA
Note: Do not apply solder paste, as this has shown to result in problems during re-soldering.
Device Replacement
The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers. To reflow the solder, apply a temperature profile according to the IC data sheet. So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.
More Information
For more information on how to handle BGA devices, visit this URL: http://www.atyourservice.ce.philips.com (needs subscription). After login, select " Magazine", then go to " Workshop Information". Here you will find Information on how .to deal with BGA-ICs.

Repair Flow Chart

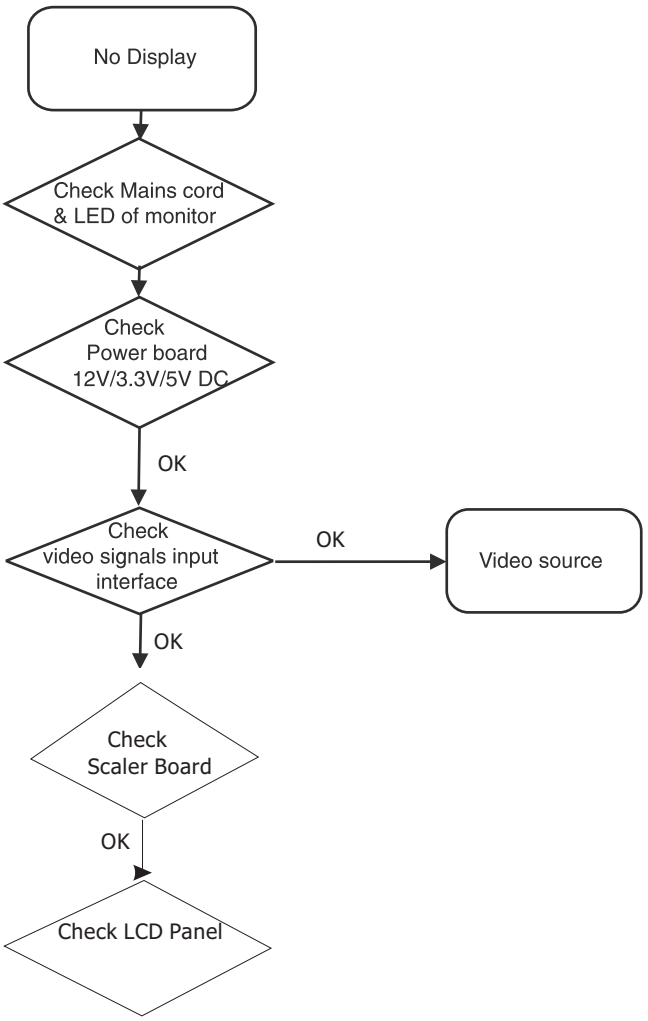


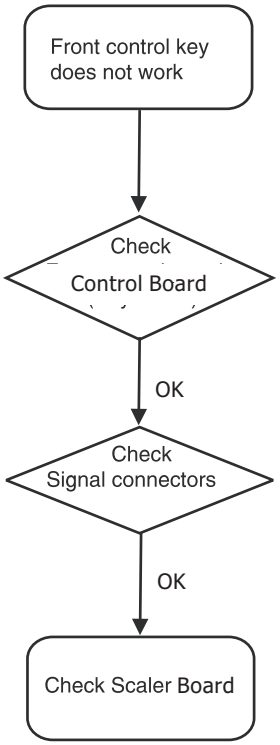
Repair Flow Chart





Repair Flow Chart





PHILIPS

HUDSON-6 190X6
GENERAL PRODUCT
SPECIFICATION

. ANALOG AND DIGITAL DUAL INPUT

. AUTO PICTURE ADJUSTMENT

. 16 FACTORY PRESET MODES AND 34 PRESET MODES WHICH CAN BE RECOVERED TO PRESET MODES

. USER FRIENDLY OSD DISPLAY FOR MODE IDENTIFICATION /ADJUSTMENT

. DDC-CI COMMUNICATION CAPABILITY

. MAX. RESOLUTION 1280*1024 NON-INTERLACED AT 75 HZ

. 19 "COLOR TFT LCD FLAT PANEL

. SUPER ERGO BASE

. FULL RANGE POWER SUPPLY 90 - 264 VAC

. CE ENVIRONMENTAL POLICY

. ANTI-GLARE TO REDUCE LIGHT REFLECTION

. POWER MANAGEMENT CAPABILITY

. SOG SUPPORT

. TCO 99/2003

. AUDIO

. PROVIDE USB PLUG

. WALL MOUNT KIT (OPTION)

. PROTECTIVE COVER (OPTION)

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CLASS NO.	19 Inch LCD Monitor TYPE :190X6FB/00 BRAND : PHILIPS	8639 000 16427	
2005-05-27			
NAME ThomasChen	SUPERS.	26	— 1 / 10 A4
TY CHECK	DATE 2005-05-27	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.	

GENERAL PRODUCT SPECIFICATION

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PHILIPS

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GENERAL PRODUCT SPECIFICATION

1.0 FOREWORD

This specification describes a 19" SXGA multi-scan color TFT LCD monitor with max resolution up to 1280*1024 /76 Hz non-interlaced.

2.0 PRODUCT PROFILE

This display monitor unit is a color display monitor enclosed in PHILIPS global styling cabinet, which has an integrated super ergo base.

2.1 LCD

2.1.1 Type NR. : LM190E03-TLB2/TLB4 (LPL)

Number of Pixels.	: 1280 (H) x1024 (V)
Physical Size.	: 396.0(w)*324.0(h)*16.5(d) mm
Pixel Pitch.	: 0.098 (per one triad) x 0.294 mm
Color pixel arrangement	: RGB vertical stripes
Support Color.	: 16.2M colors (RGB 8 bits data)
Display Mode.	: Normally White
Backlight.	: CCFL edge light system
Active area. (WXH).	: 376.32 x 301.056mm (19 "diagonal)
Viewing Angle.	: Vertical 140 degree, Horizontal 140 degree (CR=10)
Contrast ratio.	: 700:1
White luminance.	: 300nits (Typ)

2.2 Scanning frequencies

H-Frequency.	: 30K - 83 K Hz
V-Frequency.	: 56 - 76 Hz

2.3 Video dot rate. : < 140 MHz

2.4 Power input. : 90-264 V AC, 50/60 ± 2 Hz

2.5 Power consumption. : < 32 maximum (without audio)
< 40 maximum (with audio)

2.6 Dimensions. : 443.8(W) * 436.3(H)* 181.4(D) mm

2.7 Weight. : 7.2 kg

2.8 Functions:

(1) D-Sub analog R/G/B separate inputs, H/V sync separated, Composite (H+V) TTL level, SOG sync.

(2) DVI-D digital Panel Link TMDS input

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(1) USB Plug with one upstream port and one downstream port

2.9 Ambient temperature: 5 °C - 35 °C

2.10 Regulatory compliance:

Safety	B, CCIB / CCEE(China), CE(Europe), CSA(Canada), DEMKO(Nordic), EZU(Czech), FIMKO(Nordic), Gost(Russia), IEC 950 CB Report, NOM NYCE(Mexico), PSB(Singapore), SEMKO(Nordic),SISIR CPA(Singapore), TUV(Germany), UL(USA), UL2601-1(NAFTA), EN60601(EU) and IEC60601-1(WW)
EMI	C-tick, CE(Europe), FCC(USA), IC(Canada), VCCI(Japan),BSMI
Ergonomics	E2000, MPRII(Sweden), Nutek(Sweden), TCO99/2003, TUV/GS
Compatibility	PC2001, Windows 2000, Windows 98/Me, Windows XP, NSTL

3.0 Electrical characteristics

3.1 Interface signals
The input signals can be applied in two different modes:

1). D-shell Analog

Input signal: Video, H-sync, V-sync,

Video: 0.7 V p-p, input impedance, 75 ohm

Sync. : Separate sync TTL level, input impedance 2k2 ohm terminate
H-sync Positive/Negative
V-sync Positive/Negative
Composite sync TTL level, input impedance 2k2 ohm terminate (Positive/Negative)
Sync on green video 0.3V p-p Negative. (Video 0.7 V p-p Positive)

2). Intel DVI Digital

Input signal: Single channel TMDS signal

3.1.1 Audio

Input signal level: 500mVrms
Input signal connector: 3.5 mm mini jack (lime green)
Loudspeaker (Impedance: 8 Ohm+/- 15%): 3W+3W stereo for RMS Power

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Frequency range: 250Hz ~15KHz
Headphone connector: 3.5mm mini jack (black)
Headphone connection will mute speakers

3.2 Interface

3.2.1 D-Sub Cable

Length : 1.8 M +/- 50 mm (fixed)
Connector type : D-sub male with DDC-2B pin assignments.
Blue connector thumb-operated jack screws

Pin Assignment:

PIN No.	SIGNAL
1	Red video input
2	Green video input / sync on green
3	Blue video input
4	GND
5	GND Cable detect
6	Red video GND
7	Green video GND
8	Blue video GND
9	DDC +3.3V or +5V
10	Logic GND
11	GND
12	Serial data line (SDA)
13	H-sync / H+V
14	V-sync
15	Data clock line (SCL)

3.2.2 DVI Cable

The input signals are applied to the display through DVI-D cable.

Length : 1.8 M +/- 50 mm (fixed)
Connector type : DVI-D male with DDC-2B pin assignments
White connector thumb-operated jack screws

Pin Assignment:

Pin No.	Description
1	T.M.D.S. data2-
2	T.M.D.S. data2+
3	T.M.D.S. data2 shield
4	No Connect
5	No Connect
6	DDC clock
7	DDC data
8	No Connect
9	T.M.D.S. data1-
10	T.M.D.S. data1+

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11	T.M.D.S. data1 shield
12	No Connect
13	No Connect
14	+5V Power
15	Ground (for +5V) -Cable detect
16	Hot plug detect
17	T.M.D.S. data0-
18	T.M.D.S. data0+
19	T.M.D.S. data0 shield
20	No Connect
21	No Connect
22	T.M.D.S clock shield
23	T.M.D.S. clock+
24	T.M.D.S. clock-

3.2.3 Software control functions via OSD/control

OSD (On Screen Display) function
(1) Analog interface OSD:
Adjustable functions:

1st LEVEL	2nd LEVEL	3rd LEVEL
MONITOR SETUP		
Exit		
Brightness & Contrast	Brightness Contrast	
Color	Original Color, 9300K,6500K, sRGB, User Define	
Position	Horizontal Vertical	
Input Selection	Analog, Digital	
More Settings	Language	English, Espanol, Frencais, Deutsch, Italiano, Simplified Chinese
	Phase/ Clock	Phase Clock
	OSD Settings	Horizontal Vertical

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GENERAL PRODUCT SPECIFICATION

	Audio Options	Stand-alone (On, Off) Mute (On, Off)
Reset	No Yes	
Serial No.:		
(Serial No.)		
Timing Mode		
Up/Down to Move, ok to Confirm		

(2) Digital interface OSD:
Adjustable functions:

1st LEVEL	2nd LEVEL	3rd LEVEL
MONITOR SETUP		
Exit		
Brightness & Contrast	Brightness Contrast	
Color	Original Color, 9300K,6500K, sRGB, User Define	
Position (Gray out)		
Input Selection	Analog, Digital	
More Settings	Language	English, Espanol, Frencais, Deutsch, Italiano, Simplified Chinese
	Phase/ Clock (Gray out)	Phase (Gray out) Clock (Gray out)
	OSD Settings	Horizontal Vertical
	Audio Options	Stand-alone (On, Off) Mute (On, Off)

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Reset	No Yes	
Serial No.:		
(Serial No.)		
Timing Mode		
Up/Down to Move, ok to Confirm		

3.3 Timing requirement

3.3.1 Mode storing capacity
(1) Factory preset modes : 16
(2) Preset modes : 34

3.3.2 Factory preset timings
The factory settings of size and centering are according to the reference timing charts (See fig-4, fig-5)

MODE NO.	1	2	3	4
RESOLUTION	640 x 350	720 x 400	640 x 480	640 x 480
Dot clock(MHz)	25.175	28.321	25.175	30.24
f h	31.469kHz	31.468kHz	31.5kHz	35 kHz
A (us)	31.778(800 dots)	31.78(900dots)	31.778(800 dots)	28.571 (864 dots)
B (us)	3.813(96 dots)	3.813(108dots)	3.813(96 dots)	2.116 (64 dots)
C (us)	1.907(48 dots)	1.907(54dots)	1.907(48 dots)	3.175(96 dots)
D (us)	25.422(640 dots)	25.42(720dots)	25.422(640 dots)	21.164(640 dots)
E (us)	0.636(16 dots)	0.636(18dots)	0.636(16 dots)	2.116(64 dots)
f v	70Hz(70.09)	70Hz(70.085)	60Hz	67Hz
O (ms)	14.27(449 lines)	14.27(449 lines)	16.683 (525 lines)	15 (525 lines)
P (ms)	0.064(2 lines)	0.064(2 lines)	0.064 (2 lines)	0.086(3 lines)
Q (ms)	1.907(60 lines)	1.112(34 lines)	1.049 (33 lines)	1.114(39 lines)
R (ms)	11.12(350 lines)	12.71(400 lines)	15.253 (480 lines)	13.714(480 lines)
S (ms)	1.175(37 lines)	0.381(13 lines)	0.317 (10 line)	0.086(3 line)
SYNC. H/V POLARITY	+/-	-/+	- / -	- / -
SEP . SYNC	Y	Y	Y	Y

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GENERAL PRODUCT SPECIFICATION

MODE NO.	5	6	7	8
RESOLUTION	640 x 480	640 x 480	640x480	800 x 600
Dot clock(MHz)	31.500	31.501	36	36
f h	37.861kHz	37.5kHz	36kHz	35.2kHz
A (us)	26.413(832 dots)	26.667 (840 dots)	23.111 (832 dots)	28.444(1024 dots)
B (us)	1.270(40 dots)	2.032 (54 dots)	1.556 (56 dots)	2.000 (72 dots)
C (us)	3.810(120 dots)	3.81 (120 dots)	2.222 (80 dots)	3.556 (128 dots)
D (us)	20.317(640 dots)	20.317 (640 dots)	17.778 (640 dots)	22.222(800 dots)
E (us)	1.016(32 dots)	0.508 (26 dots)	1.555 (56 dots)	0.666 (24 dots)
f v	72.809Hz	75Hz	85Hz	56Hz
O (ms)	13.735(520 lines)	13.333 (500 lines)	11.763 (509 lines)	17.778 (625 lines)
P (ms)	0.079(3 lines)	0.08 (3 lines)	0.069 (3 lines)	0.057 (2 lines)
Q (ms)	0.528(20 lines)	0.427 (16 lines)	0.578 (25 lines)	0.626 (22 lines)
R (ms)	12.678(480 lines)	12.8 (480 lines)	11.093 (480 lines)	17.066 (600 lines)
S (ms)	0.45(17 lines)	0.026 (1 lines)	0.023 (1 lines)	0.029 (1 line)
SYNC. H/V POLARITY	-/-	- / -	-/-	+ / +
SEP . SYNC	Y	Y	Y	Y

MODE NO.	9	10	11	12
RESOLUTION	800 x 600	800 x 600	800 x 600	800 x 600
Dot clock(MHz)	40	50	49.498	56.251
f h	37.9kHz	48.077kHz	46.9kHz	53.7kHz
A (us)	26.4 (1056 dots)	20.80 (1040dots)	21.333 (1056 dots)	18.631 (1048 dots)
B (us)	3.2 (128 dots)	2.400 (120 dots)	1.616 (80 dots)	1.138 (64 dots)
C (us)	2.2 (88 dots)	1.280 (64 dots)	3.232 (160 dots)	2.702 (152 dots)
D (us)	20 (800 dots)	16.00 (800 dots)	16.162 (800 dots)	14.222 (800 dots)
E (us)	1 (40 dots)	1.120 (56 dots)	0.323 (16 dots)	0.569 (32 dots)
f v	60Hz	72Hz (72.188)	75Hz	85Hz
O (ms)	16.579 (628 lines)	13.85 (666 lines)	13.333 (625 lines)	11.756(631 lines)
P (ms)	0.106 (4 lines)	0.125 (6 lines)	0.064 (3 lines)	0.056 (3 lines)
Q (ms)	0.607 (23 lines)	0.478 (23 lines)	0.448 (21 lines)	0.503 (27 lines)
R (ms)	15.84 (600lines)	12.48 (600 lines)	12.8 (600 lines)	11.179 (600 lines)
S (ms)	0.026 (1 line)	0.770 (37 line)	0.021 (1 line)	0.018 (1 lines)
SYNC. H/V POLARITY	+ / +	+ / +	+ / +	+ / +
SEP . SYNC	Y	Y	Y	Y

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MODE NO.	13	14	15	16
RESOLUTION	832 x 624	1024 x 768	1024 x 768	1024 x 768
Dot clock(MHz)	57.28	65	75	78.75
f h	49.7kHz	48.363kHz	56.5kHz	60kHz
A (us)	20.11(1152 dots)	20.677(1344 dots)	17.707(1328 dots)	16.66 (1312dots)
B (us)	1.117(64 dots)	2.092(136 dots)	1.813(136 dots)	1.219 (96 dots)
C (us)	3.91(224 dots)	2.462(160 dots)	1.920(144 dots)	2.235 (176 dots)
D (us)	14.52(832 dots)	15.754(1024 dots)	13.653(1024 dots)	13.003 (1024 dots)
E (us)	0.563(32 dots)	0.369(24 dots)	0.321 (24 dots)	0.203 (16 dots)
f v	75Hz	60.004Hz	70.004Hz	75Hz (75.000)
O (ms)	13.41(667 lines)	16.666(806 lines)	14.272(806 lines)	13.328 (800 lines)
P (ms)	0.06(3 lines)	0.124(6 lines)	0.106(6 lines)	0.05(3 lines)
Q (ms)	0.784(39 lines)	0.600(29 lines)	0.514(29 lines)	0.446 (28 lines)
R (ms)	12.55(624 lines)	15.880(768 lines)	13.599(768 lines)	12.80 (768 lines)
S (ms)	0.016(1 lines)	0.062(3 lines)	0.053(3 lines)	0.017 (1 line)
SYNC. H/V POLARITY	+/+	- / -	-/-	+ / +
SEP . SYNC	Y	Y	Y	Y

MODE NO.	17	18	19	20
RESOLUTION	1024 x 768	1024 x 768	1152 x 864	1152 x 864
Dot clock(MHz)	83.096	94.5	79.9	94.5
f h	61.1kHz	68.7kHz	54.0kHz	63.9kHz
A (us)	16.367 (1360dots)	14.561 (1376 dots)	18.523(1480 dots)	15.661(1480 dots)
B (us)	1.348 (112 dots)	1.016 (96 dots)	1.952(156 dots)	1.016(96 dots)
C (us)	2.022 (168 dots)	2.201 (208 dots)	1.352(108 dots)	1.116(105 dots)
D (us)	12.323 (1024 dots)	10.836 (1024 dots)	14.418(1152 dots)	12.19(1152 dots)
E (us)	0.674 (56 dots)	0.508 (48 dots)	0.801(64 dots)	1.339(127 dots)
f v	76Hz	85Hz	60Hz	70Hz
O (ms)	13.142 (803 lines)	11.765 (808 lines)	16.671(900lines)	14.283(912lines)
P (ms)	0.049 (3 lines)	0.044 (3 lines)	0.148(8 lines)	0.047(3lines)
Q (ms)	0.507 (31 lines)	0.524 (36 lines)	0.445(24 lines)	0.689(44 lines)
R (ms)	12.57 (768 lines)	11.183 (768lines)	16.004(864 lines)	13.531(864 lines)
S (ms)	0.016 (1 line)	0.014 (1 line)	0.074(4 lines)	0.016(1 lines)
SYNC. H/V POLARITY	+ / +	+ / +	+/+	+/+
SEP . SYNC	Y	Y	Y	Y

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CLASS NO.

19 Inch LCD Monitor

TYPE :190X6FB/00

BRAND : PHILIPS

8639 000 16427

2005-05-27

NAME ThomasChen | SUPERS. | 26 | — 11 | 10 | A4

TY | CHECK | DATE 2005-05-27

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GENERAL PRODUCT SPECIFICATION

MODE NO.	21	22	23	24
RESOLUTION	1152 x 864	1152 x 870	1152 x 900	1152 x 900
Dot clock(MHz)	108	100	94.5	108
f h	67.5kHz	68.7kHz	61.8kHz	71.8kHz
A (us)	14.815 (1600 dots)	14.56 (1456 dots)	16.169 (1528 dots)	13.926 (1054dots)
B (us)	1.185 (128 dots)	1.28 (128 dots)	1.354 (128 dots)	1.185 (128 dots)
C (us)	2.37 (256 dots)	1.44(144 dots)	2.201 (208 dots)	1.778 (192 dots)
D (us)	10.667 (1152 dots)	11.52 (1152 dots)	12.19 (1152 dots)	10.667 (1152 dots)
E (us)	0.593 (64 dots)	0.32 (32 dots)	0.424 (40 dots)	0.296 (32 dots)
f v	75Hz	75Hz	66Hz	76Hz
O (ms)	13.333 (900 lines)	13.333 (916 lines)	15.151 (937lines)	13.132 (943 lines)
P (ms)	0.044 (3 lines)	0.044 (3 lines)	0.065 (4 lines)	0.111 (8 lines)
Q (ms)	0.474 (32 lines)	0.568(39 lines)	0.501 (31 lines)	0.46 (33 lines)
R (ms)	12.8 (864 lines)	12.678 (870 lines)	14.552 (900lines)	12.533 (900 lines)
S (ms)	0.015 (1 lines)	0.043 (4 line)	0.033 (2 line)	0.028 (2 lines)
SYNC. H/V POLARITY	- / -	- / -	Serr-	+ / +
SEP . SYNC	Y	Y	Y	Y

MODE NO.	25	26	27	28
RESOLUTION	1280 x 960	1280 x 960	1280 x 1024	1280 x 1024
Dot clock(MHz)	108	129.895	108	117
f h	60kHz	75kHz	64kHz	71.7kHz
A (us)	16.667(1800 dots)	13.307 (1728 dots)	15.63 (1688 dots)	13.949 (1632 dots)
B (us)	1.037(112 dots)	1.047 (136 dots)	1.037 (112 dots)	0.957 (112 dots)
C (us)	2.889(312 dots)	1.725 (224 dots)	2.296 (248 dots)	1.915 (224 dots)
D (us)	11.852(1280 dots)	9.857 (1280 dots)	11.852 (1280 dots)	10.94 (1280 dots)
E (us)	0.889(96 dots)	0.678 (88 dots)	0.445 (48 dots)	0.137 (16 dots)
f v	60Hz	75Hz	60Hz	67Hz
O (ms)	16.667(1000 lines)	13.333 (1002 lines)	16.661 (1066 lines)	14.883 (1067lines)
P (ms)	0.05(3 lines)	0.039 (3 lines)	0.047 (3 lines)	0.112 (8 lines)
Q (ms)	0.600(36 lines)	0.48 (36 lines)	0.594 (38 lines)	0.46 (33 lines)
R (ms)	16(960 lines)	12.774 (960 lines)	16.005 (1024 lines)	14.283 (1024 lines)
S (ms)	0.017(1 lines)	0.04 (3 lines)	0.015 (1 line)	0.028 (2 lines)
SYNC. H/V POLARITY	+/+	+ / +	+ / +	+ / +
SEP . SYNC	Y	Y	Y	Y

MODE NO.	29	30	31	32

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CLASS NO.

19 Inch LCD Monitor
TYPE :190X6FB/00
BRAND : PHILIPS

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2005-05-27

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2838 100 05424

RESOLUTION	1280 x 1024	1280 x 1024	1280 x 1024	688 x 556
Dot clock(MHz)	130.223	135	138.008	27
F h	76kHz	80kHz	81.1kHz	31.25kHz
A (us)	13.158 (1712 dots)	12.504(1688 dots)	12.326 (1664 dots)	32 (864 dots)
B (us)	1.024 (133 dots)	1.067(144 dots)	0.474 (64 dots)	3.852 (104 dots)
C (us)	1.905 (248 dots)	1.837(248 dots)	2.133 (288 dots)	1.778 (48 dots)
D (us)	9.83 (1280 dots)	9.481(1280 dots)	9.481 (1280 dots)	25.481 (688 dots)
E (us)	0.399(51 dots)	0.119(16 dots)	0.238 (32 dots)	0.889 (24 dots)
F v	72Hz	75Hz	76Hz	50Hz
O (ms)	14 (1064 lines)	13.329(1066 lines)	13.139 (1066 lines)	20 (625 lines)
P (ms)	0.02 (2 lines)	0.038(3 lines)	0.099 (8 lines)	0.128 (4 lines)
Q (ms)	0.5 (38 lines)	0.475(38 lines)	0.394 (32 lines)	1.408 (44 lines)
R (ms)	13.468 (1024 lines)	12.804(1024 lines)	12.622 (1024 lines)	17.972 (556 lines)
S (ms)	0.012 (0 line)	0.012 (1 line)	0.024(2 lines)	0.672 (21 lines)
SYNC. H/V POLARITY	+ / +	+/+	- / -	-/ +
SEP . SYNC	Y	Y	Y	Y

MODE NO.	33	34		
RESOLUTION	960X720	960X720		
Dot clock(MHz)	57.58	72.42		
F h	44.76kHz	56.4kHz		
A (us)	22.34(1286 dots)	17.73(1284 dots)		
B (us)	1.72(99 dots)	1.44(104 dots)		
C (us)	2.58(148 dots)	2.21(160 dots)		
D (us)	16.67(960 dots)	13.256(960 dots)		
E (us)	0.856(49 dots)	0.780(56 dots)		
F v	60Hz	75Hz		
O (ms)	16.667(746 lines)	13.333(752 lines)		
P (ms)	0.067(2.9 lines)	0.053(3 lines)		
Q (ms)	0.495(22 lines)	0.5(28 lines)		
R (ms)	16.081(720 lines)	12.766(720 lines)		
S (ms)	0.0228(1 lines)	0.0184(1 lines)		
SYNC. H/V POLARITY	-/ +	-/ +		
SEP . SYNC	Y	Y		

A	: H-Total	O	: V-Total
B	: H- Sync width	P	: V- Sync width
C	: H- Back porch	Q	: V- Back porch
D	: H- Video width	R	: V- Video width
E	: H- Front porch	S	: V- Front porch

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CLASS NO.

19 Inch LCD Monitor
TYPE :190X6FB/00
BRAND : PHILIPS

8639 000 16427

2005-05-27

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2838 100 05424

3.3.3 Horizontal scanning

Sync polarity : Positive or Negative
Scanning frequency : 30 - 83 K Hz

3.3.4 Vertical scanning

Sync polarity : Positive or Negative
Scanning frequency : 56 - 76 Hz

3.4 Power input connection

Power cord length : 1.5 M
Power cord type : 3 leads power cord with protective earth plug.

3.5 Power management

The power consumption and the status indication of the set with power management function are as follows,

STATUS	H-sync	V-sync	Video	Power	LED
On	On	On	Active	<40W	Green /With Audio
On	On	On	Active	<32W	Green / Without Audio
Off	Off	Off	Blanked	<1W	Amber LED
DC Power off			N / A	<1W	LED Off

According to VESA power saving signal, TCO99 power saving requirement And EPA energy star requirement

For digital input power consumption is less 1W
(In non-DMPM recoverable off mode)

Note:

To achieve under 1 Watt power saving when" Stand-Alone Audio"feature is selected 'On' and system is in Sleep Mode, follow below condition :
Volume has to be adjusted to 0% prior to measurement.

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3.6 Display identification

3.6.1 In accordance with VESA Display Channel Standard V1.0 and having DDC-CI capability.

3.6.2 In accordance with DVI requirement (DDWG digital Visual Interface revision 1.0) use DDC-2B and EDID 3.0 structure 2.0

4.0 Visual characteristics

4.1 Test conditions

Unless otherwise specified, this specification is defined under the following conditions.

(1) Input signal: As defined in 3.3, 1280 x 1024 non-interlaced mode (80K/75Hz), signal sources must have 75 ohm output impedance.

(2) Luminance setting: controls to be set to 200 nits with full white screen signal

(3) Warm up: more than 30 minutes after power on with signal supplied.

(4) Ambient light: 400 -- 600 lux.

(5) Ambient temperature: 20 +/- 5 °C

4.2 Resolution
Factory preset modes (16 modes)

#	Resolution	H-Frequency	Pixel rate	V-Frequency	Comment
1	640X350	31.5KHz	25.175	70Hz	IBM VGA 10h
2	720X400	31.5KHz	28.322	70Hz	IBM VGA 3h
3	640X480	37.5KHz	31.501	75Hz	
4	640X480	35.0KHz	30.24	67Hz	
5	640X480	31.5KHz	25.175	60Hz	
6	800X600	35.2KHz	36	56Hz	
7	800X600	46.9KHz	49.498	75Hz	
8	800X600	37.9KHz	40	60Hz	
9	832X624	49.7KHz	57.28	75Hz	MAC
10	1024X768	60.0KHz	78.75	75Hz	
11	1024X768	48.4KHz	65	60Hz	
12	1152X870	68.7KHz	100	75Hz	MAC
13	1152X900	71.8KHz	108	76Hz	SUN Mode II

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14	1280X1024	64.0KHz	108	60Hz	
15	1280X1024	80.0KHz	135	75Hz	
16	688X556	31.3KHz	27	50Hz	TV-PAL

Note : 1. Screen displays perfect picture at 16 factory preset modes.

2. Screen displays visible picture with OSD warning when input modes are other than 34 preset modes

4.3 Brightness: 200 nits (at panel color temperature, Screen center point, Fig. 1)

4.4 Image size

Actual display size 376x301mm

4.5 Brightness uniformity

Set contrast at 50% and turn the brightness to get average above 200 nits at center of the screen.
Apply the Fig 1. It should comply with the following formula:

$$\frac{\text{Minimum luminance of nine points (brightness)}}{\text{Maximum luminance of nine points (brightness)}} >= 0.75 \text{ (Min)}$$

4.6 Check Cross talk

Apply Pattern 2. Set contrast at 50 % and brightness at 100 %. Measure A. Then output Pattern 3 and measure A' The cross talk value:

$$\frac{ABS\ (A - A')}{A} \times 100\ \% < 1.8\ \%\ (Max)$$

4.7 White color adjustment

There are three factory preset white color 9300K, 6500K and sRGB

Apply full white pattern, with brightness in 100 % position and the contrast control at 50 % position. The 1931 CIE Chromaticity (color triangle) diagram (x,y) coordinate for the screen center should be:

9300K CIE coordinates X = 0.283 +/- 0.020

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Y = 0.297 +/- 0.020

6500K CIE coordinates X = 0.313 +/- 0.020
Y = 0.329 +/- 0.020

sRGB CIE coordinates X = 0.313 +/- 0.020
Y = 0.329 +/-0.020

4.8 Light Frame features

4.8.1 Full screen mode --- accessed by HOT-KEY at front of panel.

Provide three options: Internet, Text and Graphics

4.8.2 Multi-window mode --- accessed by Light Frame application program

Brightness control

Sharpness enhancement

Contrast enhancement

Color boosting

5.0 Mechanical characteristics

5.1 Controls

Front side: DC power switch
LF Key
Smart Bright Sensor

Rear side: D-SUB signal connector
DVI signal connector
Power cord socket
Audio In jack
USB upstream port

Left side: Headphone jack
USB downstream ports

Right side: OSD function key OK
UP / DOWN (Brightness key)
LEFT / RIGHT (Volume control)
AUTO key

5.2 Unit dimension / Weight

Set dimension (incl. pedestal): 443.8(W) * 436.3(H)* 181.4(D) mm

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GENERAL PRODUCT SPECIFICATION

Net weight. : 7.2 kg

5.3 Foldable base

Tilt angle : -5 ° to +25 °

5.4 Transportation packages

5.4.1 Shipping dimension/Weight

Carton dimension. : 477(W) * 498(D) * 150(H) mm
Gross weight. : 8.5 Kg

5.4.2 Block unit / Palletization

layers / block	sets/layer	sets/block unit
15	4	60

blocks/container	
20 feet	40 feet
6	24

6.0 Environmental characteristics

The following sections define the interference and susceptibility condition limits that might occur between external environment and the display device.

6.1 Susceptibility of display to external environment

Operating

- Temperature. : 5 to 35 degree C
- Humidity. : 80% max
- Altitude. : 0 to 12,000 feet

Storage

- Temperature. : -20 to 60 degree C
- Humidity. : 100% max (< 40℃)
- Altitude. : 0 to 30,000 feet

Note: recommend at 5 to 35°C, Humidity less than 60 %

6.2 Transportation tests

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A: all regions except China & India

Standard		Philips UAN-D1400	NSTA
Drop Test	Height	55/25 cm	76.0 cm
	Sequence	1 face(btm-55cm) 5 faces(others-25cm) Btm->Btm->Btm->L->F->Rt->Rr->Top	1 corner 3 edge (Room temp) 6 face
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance (Room temp 20℃~23℃, humidity 40%~65%)	
Vibration Test	Sequence	(1) PACKAGING 7 Hz, 1.05 G, 30 min. for transport direction only	
		(2) OPERATING 7 Hz, 10.6 mm, 30 min. for transport direction only	
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance	
Bump Test	For design evaluation only Operating 10 G, 11 msec, 1000 cycles Temperature : 23℃ Humidity : 60 % Air pressure : 100 kpa (According to DSD draft standard UAN-D636)		

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B: regions of China & India:

Standard		Philips UAN-D1400	NSTA
Drop Test	Height	a.80\b.60\c.70 cm	76.0 cm
	Sequence	a.Face: Btm->F->L->Rr->Rt(80cm) b.Edge: F-Btm,Rt-Btm,F-Rt Corner:Rt-Btm-F(60cm) c.Btm->Btm(70cm)	1 corner 3 edge (Room temp) 6 face
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance (Room temp 20℃~23℃, humidity 40%~65%)	
Vibration Test	Sequence	(1) 10-30-10 Hz, 0.75mm,5cycles, 15 min. for X,Y,Z	
		(2) 30-55-30 Hz, 0.25mm, 5cycles ,9 min. for X,Y,Z	
	Test Result	Electrical function ok Mechanical function ok No serious damage on set appearance	
Bump Test		For design evaluation only Operating 100m/s^2, 16 msec, 1000 pulses Bump frequency: 60~80times/min Source:GB9384-97	

6.3 Display disturbances from external environment
According to IEC 801-2 for ESD disturbances

6.4 Display disturbances to external environment

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6.4.1 EMI

EMI: FCC, VCCI, CE, C-Tick, MPRIII, BCIQ,

7.0 Audio

Input signal level: 500mVrms
Input signal connector: 3.5 mm mini jack (lime green)
Loudspeaker (Impedance: 8 Ohm+/- 15%): 3W+3W stereo for RMS Power
Frequency range: 250Hz ~15KHz
Headphone connector: 3.5mm mini jack (black)
Headphone connection will mute speakers

8.0 USB Plug

Connect the upstream port of the monitor to Host PC's USB port via USB cable,
then attach external device to the downstream port of the monitor.
Check if the device can work properly.

9.0 Reliability

9.1 Mean Time Between Failures
System MTBF (Excluding the LCD panel and CCFL): 50,000 hrs
CCFL MTBF: 30,000 hrs (50% of original brightness)

10.0 Quality assurance requirements

10.1 Acceptance test
According to MIL-STD-105D Control II level

AQL: 0.65 (major)
2.50 (minor)
(Please also refer to annual quality agreement)
Customer acceptance criteria: UAW0377/00

11.0 Serviceability
The serviceability of this monitor should fulfill the requirements, which are prescribed in UAW-0346 and must be checked with the check list UAT-0361.

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GENERAL PRODUCT SPECIFICATION

12.0 Philips Flat Panel Monitors Pixel Defect Policy

Philips Flat Panel Monitors Pixel Defect Policy

BRIGHT DOT DEFECTS	ACCEPTABLE LEVEL		
MODEL	190P/X	190B	190S
1 lit sub-pixel	0	0	4 or fewer
2 adjacent lit sub-pixels	0	0	2 or fewer
3 adjacent lit sub-pixels (one white pixel)	0	0	0
Distance between two bright dot defects*	0	0	15mm or more
Bright dot defects within 20 mm circle	0	0	3 or fewer
Total bright dot defects of all type	0	0	4 or fewer

BLACK DOT DEFECTS	ACCEPTABLE LEVEL		
MODEL	190P/X	190B	190S
1 dark sub-pixel	0	0	4 or fewer
2 adjacent dark sub-pixels	0	0	2 or fewer
3 adjacent dark sub-pixels (one white pixel)	0	0	0
Distance between two black dot defects*	15mm or more	15mm or more	15mm or more
Black dot defects within 20 mm circle*	0	0	3 or fewer
Total black dot defects of all type	0	0	4 or fewer

TOTAL DOT DEFECTS	ACCEPTABLE LEVEL		
MODEL	190P/X	190B	190S
Total bright or black dot defects of all type	0	0	5 or fewer

* 1 or 2 adjacent sub-pixel defects = 1 dot defect

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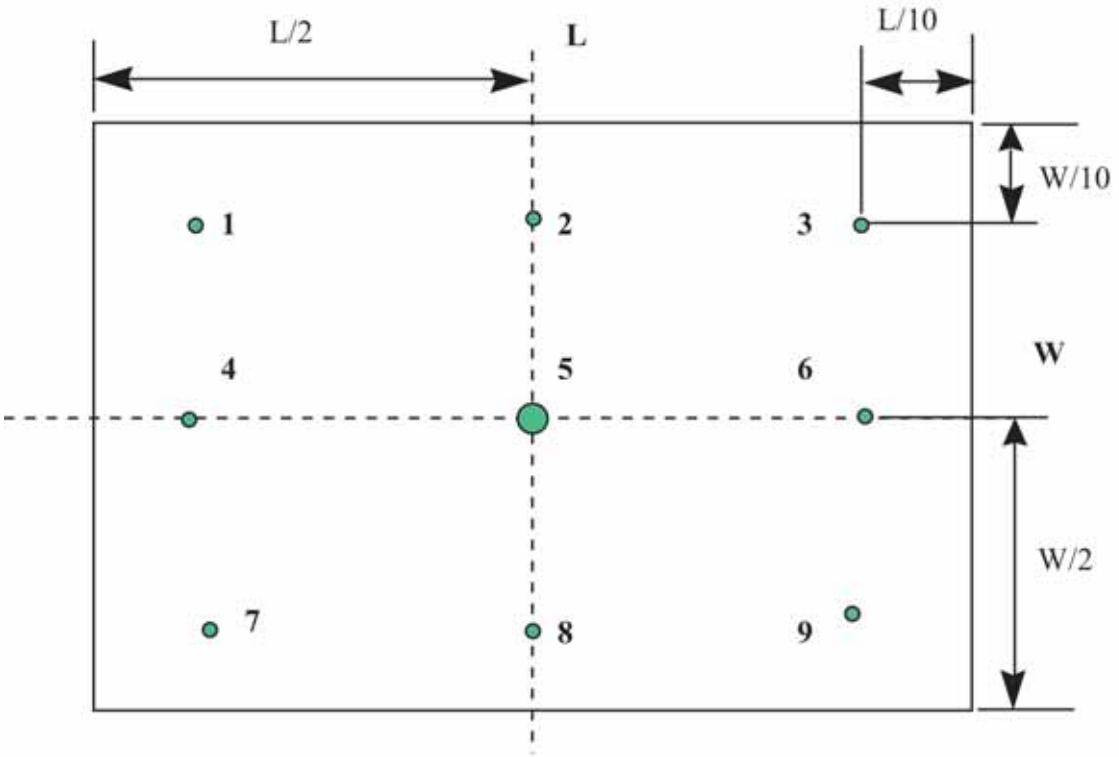
PHILIPS

Fig 1: Brightness and Uniformity



Position 5 = Screen center point

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CLASS NO.	19 Inch LCD Monitor TYPE :190X6FB/00 BRAND : PHILIPS	8639 000 16427
2005-05-27		
NAME ThomasChen	SUPERS.	26 — 23 10 A4
TY CHECK	DATE 2005-05-27	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.

Fig 2: Cross talk pattern
Gray level 184 (256 Gray level)

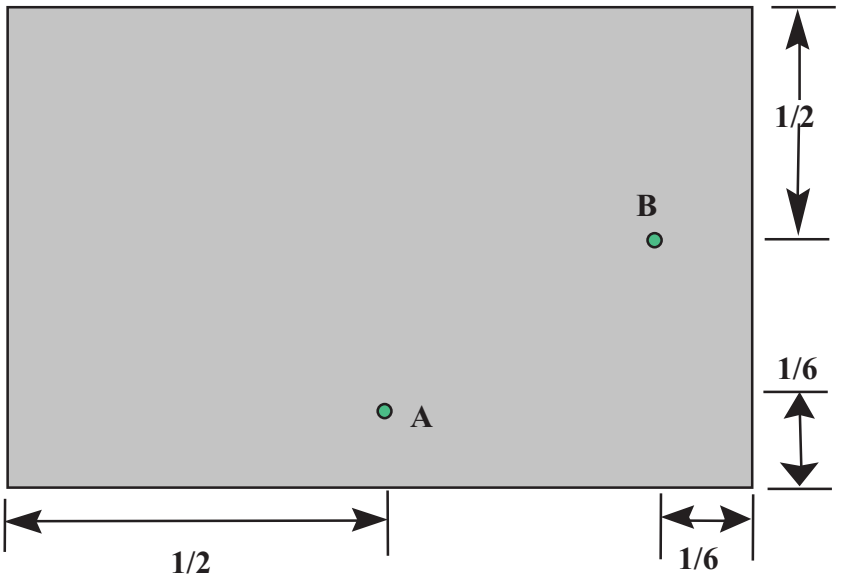
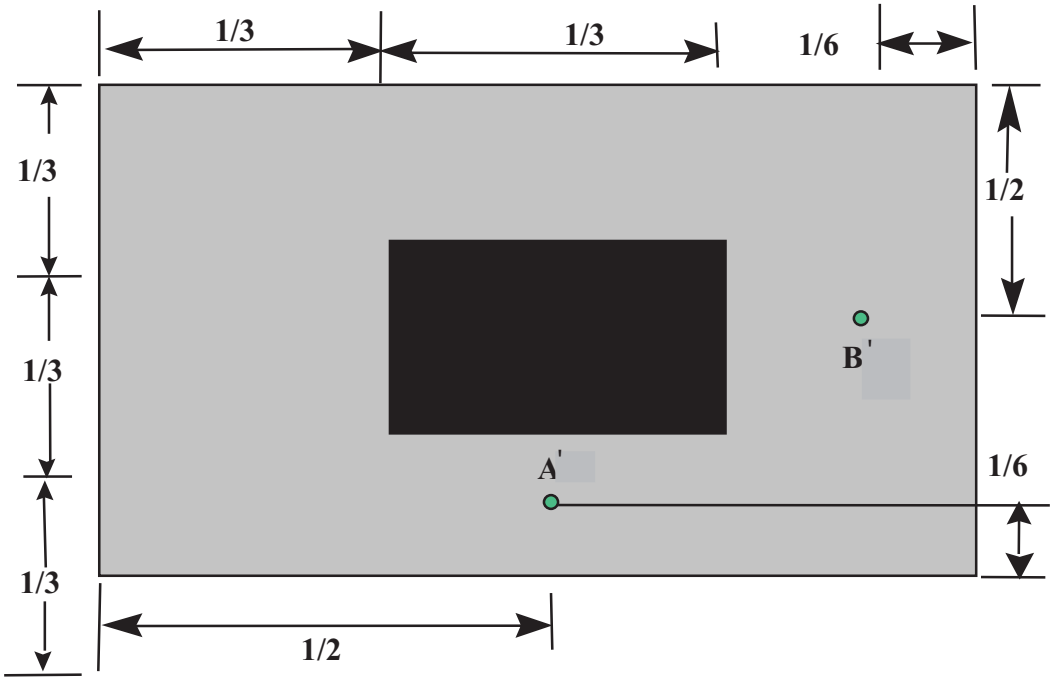


Fig 3: Cross talk pattern
Center at Gray level 0 (Black)



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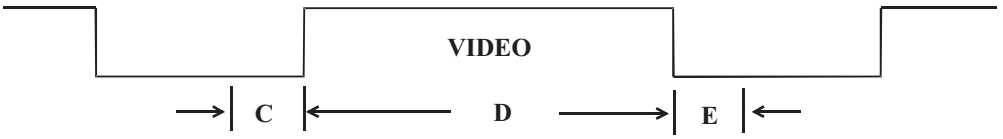
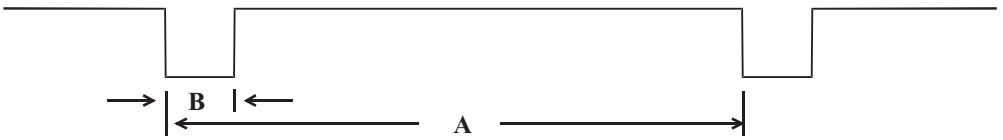
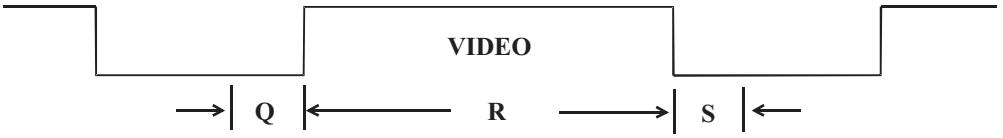
SEPARATE SYNC.

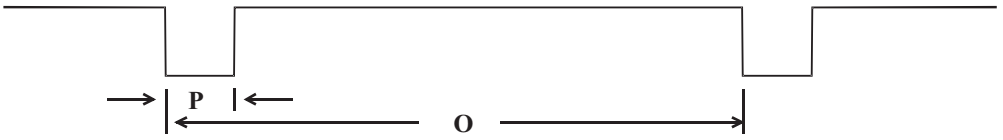


HORIZONTAL

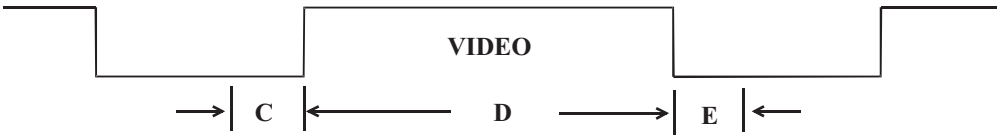




VERTICAL



COMPOSITE SYNC.



HORIZONTAL

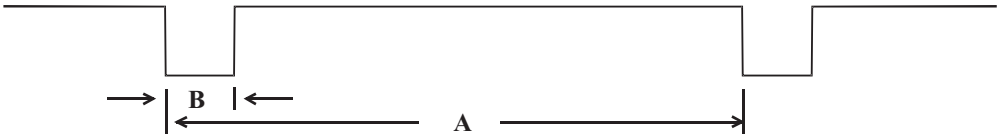


FIG-4 TIMING CHART -1

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CLASS NO.	19 Inch LCD Monitor TYPE :190X6FB/00 BRAND : PHILIPS	8639 000 16427
2005-05-27		

NAME ThomasChen	SUPERS.	26	— 25	10	A4
TY CHECK	DATE 2005-05-27	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.			

GENERAL PRODUCT SPECIFICATION

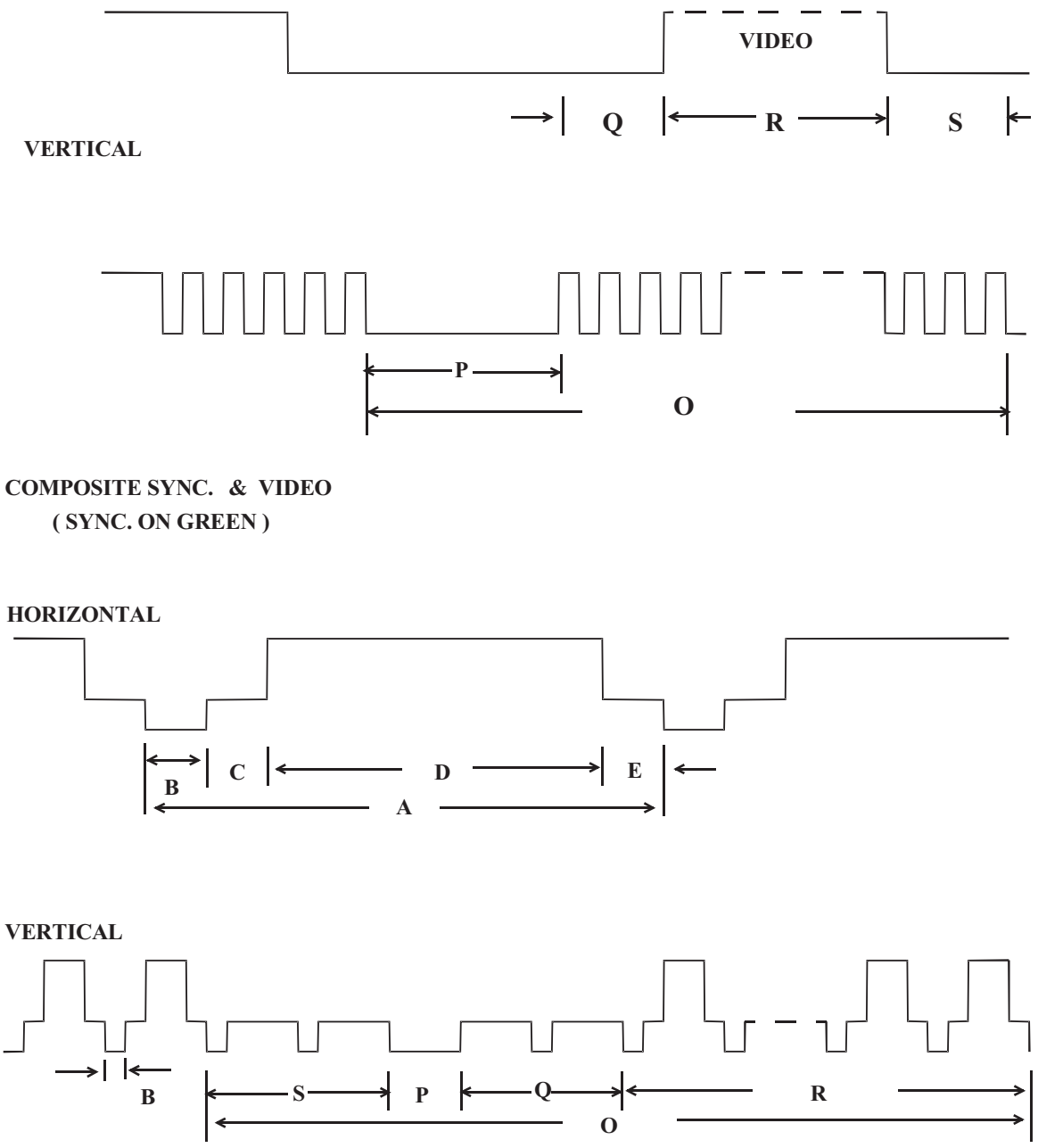

FIG-5 TIMING CHART -2

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Diversity of 170X6FB/93 Compared with 170X6FB/00		
Item	12NC	Description
	863900016426	170X6FB/93
1055	313819875861	PSU OPENFR IIPS 43W(AIP-0093)
1060	313819871451	CORD SUB-D 15/1M8/SUB-D 15 BK
1061	313818871651	MAINSCORD CCEE 10A 1M8 DET BK
0450	313815640911	CARTON
Diversity of 170X6FW/00 Compared with 170X6FB/00		
Item	12NC	Description
	863900016431	170X6FW/00
1055	313819875861	PSU OPENFR IIPS 43W(AIP-0093)
1059	242207600735	CBLE PHONE 1M8 PHONE M/M BU B
1060	242207600734	CBLE SUB-D 15/1M8/SUB-D 15 BU
1061	242207000099	MAINSCORD IEC 10A 1M83 DET3P B
1063	242207600733	CBLE USB-A 1M8 USB-B M/M BU B
0030	313815760551	BEZEL ASSY(T)
0031	313815417181	BEZEL(T)
0040	313815760561	BACK COVER ASSY(BLUE)
0041	313815417191	BACK COVER(BLUE)
0043	313815417201	OSD BUTTON
0044	313815417211	SKIN COVER
0097	313815417221	LOGO COVER(T)
0602	313811708652	E-D.F.U.
0450	313815640671	CARTON
Diversity of 170X6FW/93 Compared with 170X6FB/00		
Item	12NC	Description
	863900016432	170X6FW/93
1055	313819875861	PSU OPENFR IIPS 43W(AIP-0093)
1059	242207600735	CBLE PHONE 1M8 PHONE M/M BU B
1060	242207600734	CBLE SUB-D 15/1M8/SUB-D 15 BU
1061	242207000098	MAINSCORD CHN 10A 1M83 DET3P B
1063	242207600733	CBLE USB-A 1M8 USB-B M/M BU B
0030	313815760551	BEZEL ASSY(T)
0031	313815417181	BEZEL(T)
0040	313815760561	BACK COVER ASSY(BLUE)
0041	313815417191	BACK COVER(BLUE)
0043	313815417201	OSD BUTTON
0044	313815417211	SKIN COVER
0097	313815417221	LOGO COVER(T)
0490	313815682831	PACKING ASSY-CHINA
0450	313815641061	CARTON
0602	313811708652	E-D.F.U.
Diversity of 190X6FB/93 Compared with 190X6FB/00		
Item	12NC	Description
	863900016428	190X6FB/93
1055	313819875861	PSU OPENFR IIPS 43W(AIP-0093)
1060	313819871451	CORD SUB-D 15/1M8/SUB-D 15 BK
1061	313818871651	MAINSCORD CCEE 10A 1M8 DET BK
0450	313815640931	CARTON
0451	313815640691	CUSHION-R
0452	313815640681	CUSHION-L

Safety Test Requirements

All units that are returned for service or repair must pass the original manufactures safety tests. Safety testing requires both *Hipot* and *Ground Continuity* testing.

HI-POT TEST INSTRUCTION

1.Application requirements

1.1 All mains operated products must pass the Hi-Pot test as described in this instruction.
1.2 This test must be performed again after the covers have been refitted following the repair, inspection or modification of the product.

2. Test method

2.1 Connecting conditions

2.1.1 The test specified must be applied between the parallel-blade plug of the mainscord and all accessible metal parts of the product.
2.1.2 Before carrying out the test, reliable conductive connections must be ensured and thereafter be maintained throughout the test period.
2.1.3 The mains switch(es) must be in the "ON" position.

2.2 Test Requirements
All products should be HiPot and Ground Continuity tested as follows:

Condition	HiPot Test for products where the mains input range is Full range(or 220V AC)	HiPot Test for products where the mains input is 110V AC(USA type)	Ground Continuity Test requirement
Test voltage	2820VDC (2000VAC)	1700VDC (1200VAC)	Test current: 25A,AC Test time: 3 seconds(min.) Resistance required: <=0.09+Rohm, R is the resistance of the mains cord.
Test time (min.)	3 seconds	1 second	
Trip current (Tester)	set at 100 uA for Max. limitation; set at 0.1 uA for Min. Limitation	5 mA	
Ramp time (Tester)	set at 2 seconds		

2.2.1 The minimum test duration for Quality Control Inspector must be 1 minute.

2.2.2 The test voltage must be maintained within the specified voltage + 5%.

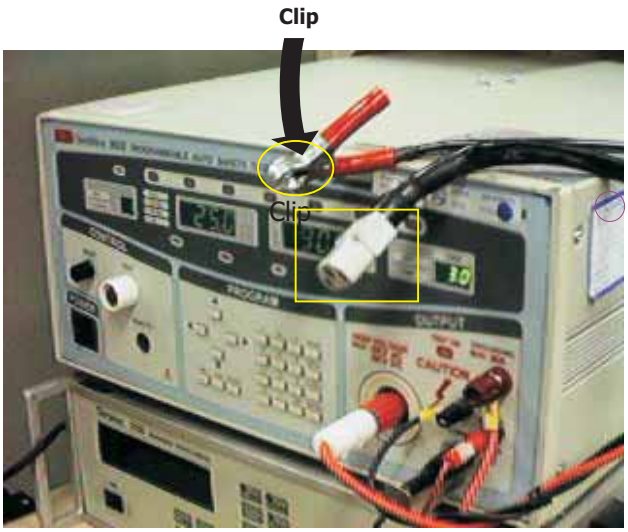
2.2.3 There must be no breakdown during the test.

2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

3. Equipments and Connection

3.1. Equipments
For example :
- ChenHwa 9032 PROGRAMMABLE AUTO SAFETY TESTER
- ChenHwa 510B Digital Grounding Continuity Tester
- ChenHwa 901 (AC Hi-pot test), 902 (AC, DC Hi-pot test) Withstanding Tester

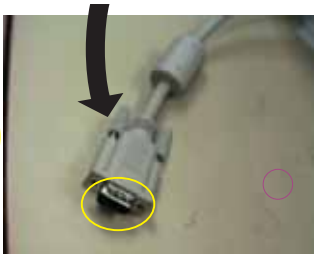
3.2. Connection
* Turn on the power switch of monitor before Hipot and Ground Continuity testing.



(ChenHwa 9032 tester)

Video cable

Connect the "video cable" or "grounding screw" to the CLIP on your tester.



Grounding screw

Connect the power cord to the monitor.

Power outlet

(Rear view of monitor)

4. Recording

Hipot and Ground Continuity testing records have to be kept for a period of 10 years.

Go to cover page

TELEVISION/MONITOR SAFETY GUIDELINES FOR THE PROFESSIONAL SERVICE TECHNICIAN

Safety Checks
After the original swevice problem has been corrected,a complete safety check
should be made. Be sure to check over the entire set, not just the areas where you have worked. Some previous servicer may have left an unsafe condition,which could be unknowingly passed on to your customer. Be sure to check all of the following:

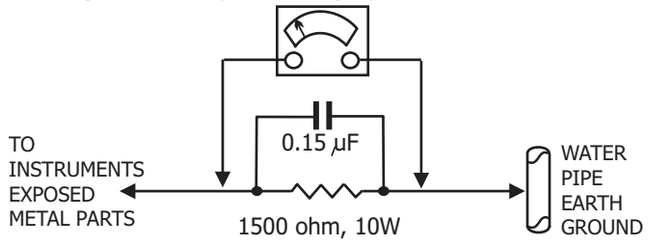
Fire and Shock H azard
1. Be sure all components are positioned in such a way as to avoid the possibility of adjacent component shorts. This is especially important on those chassis which are transported to and feom the service shop.
2. Never release a repaired unit unless all protective devices such as insulators, barries, covers, strain reliefs, and other hardware have been installed in accordance with the original design.
3. Soldering and wiring must be inspected to locate possible cold solder joints,solder splashes,sharp solder points, frayed leads, pinched leads, or damaged insulation (including the ac cord).Be certain to remove loose solder balls and all other loose foreign particles.
4. Check across-the-line components and other components for physical evidence of damage or deteriortion and replace if necessary. Follow original layout,lead length, and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces or edges must be avoided.
6. Critical components having special safety characteristics are identified with ans bythe Ref. No. in the parts list and enclosed within a broken line * (where seceral criticalcomponents are grouped in one area) along with the safety symbols on the schematic diagrams and/or exploded views.
7. When servicing any unit, always use a seoparate isolation transformer for the chassis Failure to use a separate isolation transformer may exopose you to possible shock hazard, and may cause damage to servicing instruments.
8. Many electronic products use a polarized ac line cord (one wide pin on the plug.) Defeating this safety feature may create a potential hazard to the service and the user. Extension cords which do not incorporate the polarizing feature should never be used.
9. After reassembly of the unit, always perform an leakage test or resistance test from the line cord to all exposed metal parts of the cabinet. Also check
all metal control shafts(with knobs removed), antenna terminals, handles, screws, etc. to be sure the unit may be safety operted without danger of electrical shock.

* Broken line

Implosion
1. All picture tubes used in current model receivers are equipped with an intergral implosion system. Care should always be used, and safety glassesworn,whenever handling any picture tube. Avoid scratching or other rwise damaging the picture tube during installation.
2. Use only replacement tubes specified by the manufacturer.

X-radiation
1. Be sure procedures and instructions to all your service personnel cover the subject of X-radiation. Potential sources of X-rays in TV receivers are the picture tube and the high voltage circuits. The basic precaution which must be exercised is to keep the high voltage at the factory recommended
level.
2. To avoid possible exposure to X-radiation and electrical shock, only the manufacturer's specified anode connectors must be used.
3. It is essential that the service technician has an accurate HV meter available at all times. The calibration of this meter should be checked periodically against a reference standard.
4. When the HV circuitry isoperating properly there is no possibility of an x-radiation problem. High voltage should always be kept at the anufacture,s rated value-no higher - for optimum performance. Every time a color set is serviced, the brightness should be run up and down while monitoring the HV with a meter to be certain that the HV is requlated correctlv and does not exceed the specified value. We suggest that you and your technicians review test procedures so that HV requation are always checked as a standard servicing procedure, and the reason for this prudent routine is cleary understood by everyone. It is important to use an accurate and reliable HV meter. It is recommended that the HV recorded on each customer's invoice, which will demonstrate a proper concern for the customer's safety.
5. When troubleshooting and making test measurements in a receiver with
6. New picture tubes are specifically designed to withstand higher operathng voltages without creating undesirable X-radiation. It is strongly recommended that any shop test fixture which is to be used with the new higher voltage chassis be equipped with one of the new type tubes designed for this service.Addition of a permanently connected HV meter to the shop test fixture is advisable. The CRT types used in these new sets should never be replaced with any other types,as this may result in excessive X-radiation.
7. It is essential to use the specified picture tube to avoid a possible X-diation problem.
8. Most TV receivers contain some type of emergency "Hold Down" circuit to pervent HV from rising to excessive levels in the presence of a failure mode. These various circuits should be understood by all technicians servicing them, especially since many hold down circuits are inoperative as long as the receiver performs normally.

Leakage Current Cold Check
1. Unplug the ac line cord and connect a jumper between the two prongs of the plug.
2. Turn on the power switch.
3. Measure the resistance value between the jumpered ac plug and all exposed cabinet parts of the receiver, such as screw heads, antennas, and control shafts.When the exposed metallic part has a return path to the chassis, the reading should be between 1 megohm and 5.2 megohms. When the exposed metal does not have a return path to thr chassis, the reading must be infinity.Remove the jumper from the ac line cord.



Leakage Current Hot Check
1. Do not use an isolation transformer for this test. Plug the completely reassembled receiver directly into the ac outlet.
2. Connect a 1.5k, 10w resistor paralleled by a 0.15uf. capacitor between each exposed metallic cabinet part and a good earth ground such as a water pipe, as shown above.
3. Use an ac voltmeter with at least 5000 ohmsy volt sensitivity to measure the potential across the resistor.
4. The potential at any point should not exceed 0.75 volts. A leakage current tester may be used to make this test; leakage current must not exceed 0.5 milliamps. If a measutement is outside of the specified limits, there is a possibility of shock hazard. The receiver should be repaired and rechecked before retutning it to the customer.
5. Repeat the above procedure with the ac plug reversed.(Note: An ac adapter is necessary when a polarized plug is used. Do not defeat the polarizing feature of the plug.)

Picture Tube Replacement
The primary source of X-radiation in this television receiver is the picture tube.The picturetube utilized in this chassis is specially constructed to limit X-radiation emissions. For continued X-radiation protection, the replacement tube must be the same type as the original, including suffix letter,or a Philips approved tupe.

Parts Replacement
Many electrical and mechanical parts in Philips television sets have special safety related charcteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. The use of a substitute part which does not have the same safety characteristics as the Philips recommended replacement part shown in this service manual may create shock, fire, or other hazards

WARNING : Before removing the CRT anode cap, turn the unit OFF and short the HIGH VOLTAGE to the CRT DAG ground.
SERVICE NOTE : The CRT DAG is not at chassis ground.